THE AGRIMONETARY SYSTEM OF THE EEC

Doctoral dissertation

Florence, 1962
I would like to thank the European Investment Bank for giving me a grant for my third year and making it possible to finish this thesis.
Preface

This study was carried out during my three years at the European University Institute. The fact that my thesis actually got written, despite such distractions as getting married; a long illness and Florence, is above all due to Sir Andrew Scnfield and his wife. His sudden death was a terrible shock and made me even more aware of the tremendous debt I owe to his kindness and encouragement.

I am also especially grateful to my external supervisor, Prof. Secondo Tarditi of Siena University, and to Prof. Manfred Streit, who had the unenviable task of stepping in at a late stage as my supervisor at the European University Institute.

I would also like to thank Prof. M. Tracy who kindly provided comments at each stage of writing this thesis, and who kept me in touch with the Mecca of this field of study – Brussels. My thanks also go to Donal Creedon and his colleagues at the Irish Ministry of Agriculture, who I hope still feel that I have not completely betrayed my Irish blood!

My acknowledgements are also due to the many people who discussed the agrimoney system and various topics relating to the study with me, and who sent articles, especially: – Rick Bacon, Prof. G. Basevi (Università di Bologna), R. Bennink (EEC Commission), Prof. H. De Jecco (European University Institute), J.L. Chomel, Shelby Dalton (CCPA), J. Dickinson and J. Wildgoose (M.A.P.P.), Prof. C. Mackel
I am also grateful to Maria Wieken, and my colleagues, especially Jutta Krause, for their advice concerning the empirical work, and to the secretaries of the Economics Department, in particular, Jacqueline Bourgonje, who resolved seemingly endless problems. Finally, I would like to thank my husband, Paolo, who feels very strongly about the effects of green exchange rates, and is the first who would like to see them abolished.
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Chapter 1

Identifiable Objectives of the EEC Agrimonetary System, and Plan of Study.

The success of any economic policy is generally measured by the extent to which it meets its objectives, the side effects to which it gives rise, and the cost in terms of resources used for the policy. This thesis aims to show that on the basis of these considerations the agrimonetary system of the EEC is to be judged negatively, and that radical reform of the system is necessary.

The EEC agrimonetary system has enabled price differences of as much as 50% (in 1976) between EEC member states, a price span which at times has been even greater than that between EEC countries before the Common Agricultural Policy (CAP) was established.

The EEC agrimonetary system evolved in a piecemeal and haphazard way as the result of a series of unplanned responses to unforeseen contingencies. In consequence there were few clear statements of the aims and objectives of the agrimonetary system and such statements as there were tended to be extremely cursory and elliptical. As a result it is necessary to expand and interpret the original statements of the objectives in order to understand precisely what they meant, and this will now be attempted.

As will be shown in Chapter 2 (which explains the historical development and present operation of the agrimonetary system),
the system first came into operation in 1957, with the establishment of common EEC prices for certain agricultural products. Common prices were expressed in common units of account and were converted into national currencies using agricultural conversion rates which were equivalent to the par currency rates of member states.

Problems for this system began in 1963, with the devaluation of the French franc. Applying the devaluation fully to the agricultural sector would have meant a sudden increase in agricultural prices, and to prevent this it was agreed that the French could allow devaluation of the agricultural conversion rate to lag behind that of the par rate. As a result, the market exchange rate and the agricultural conversion rate differed, the latter becoming known as the green exchange rate.

In the absence of compensatory measures, this divergence between the two rates would have caused a distortion of trade flows. To prevent this occurring, a series of compensatory measures were applied at the border, and these later became known as monetary compensatory amounts (MCA's). Together, green exchange rates and MCA's are known as the green exchange rate system, and this undoubtedly is the most important element of the agrimonetary system. The success of the agrimonetary system depends largely on how far the green exchange rate system meets its objectives.

The objective behind the first use of green exchange rates was to avoid inflationary pressures in France.

Later in 1969 the Deutsch mark was revalued and the Germans were allowed to introduce a green exchange rate, though in this case the objective was to avoid the fall in German agricultural
prices (and possibly incomes) that would occur if the revaluation applied fully to the agricultural sector.

It was only after the green exchange rate system had been in operation for two years that its use was formalised by an ESC Regulation (Number 974/71) on 12th May, 1971. According to this regulation, the aim of the green exchange rate system was to prevent exchange rate changes undermining the functioning of the common market or the intervention system. (1) At the same time the green exchange rate system was to serve as a temporary adjustment mechanism to cushion the sudden changes in prices which it is assumed would otherwise have serious consequences for the agricultural sector concerned.

Clearly the aim of green exchange rates to prevent currency fluctuations undermining the functioning of the common market requires clarification and this is best achieved by referring to the Treaty of Rome. Article 39 of the Treaty sets out certain objectives which are designed to integrate the national agricultural markets into a single Community-wide market. These objectives are:

"a) To increase agricultural productivity by developing technical progress and ensuring the rational development of agricultural production and the optimal utilization of the factors of production, particularly labour.

b) To ensure thereby a fair standard of living for the agricultural population...

c) To stabilize markets.

d) To guarantee regular supplies.

e) To ensure reasonable prices in supplies to consumers."
The Treaty of Rome envisaged these objectives as being achieved through three operating principles: common agricultural prices (which would enable the elimination of barriers on intra-EEC trade), Community preference and common financing.

The extent to which the green exchange rate system prevents the common market being undermined by currency fluctuations therefore depends on the extent to which the system allows the operating principles to function and the objectives of Article 39 to be met.

This is a lengthy list of objectives, some of which are complementary, and others of which may conflict, so further elucidation is necessary and will be provided in the following assessment of how far the green exchange rates met their objectives.

Assessment of the Extent to which the Green Exchange Rate System Met its Objectives

i) The objectives of preserving common financing and Community preference.

On the credit side, there is general agreement that the green exchange rate system has at least met certain of its objectives. In particular the principles of Community
preference and joint financial responsibility have been able to continue.

Against these successes however there are many objectives the green exchange rate system has not been able to meet.

ii) The objective of easing inflationary pressures

The avowed objective of introducing a French green rate in 1969 was to avoid adding to inflationary pressures and this pretext was later used by other countries with depreciating or devalued currencies, such as Italy and Britain. To assess how far green exchange rates succeeded in meeting this aim it is first necessary to estimate their impact on agricultural prices, and the consequent affect on some general price index, such as that of retail prices. In both cases not only the direct price affects have to be considered, but also the secondary price and volume affects. These secondary affects arise from the changes induced by the green exchange rate system in the allocation of resources within the EEC, and the terms of trade between the EEC and the rest of the world.

Chapter 3 will discuss some of these studies which
attempt to assess the impact that green exchange rates have had on prices, both in the individual member states, and in the EEC as a whole. A common conclusion of these studies is that at least until 1979 the actual average level of agricultural prices in the EEC as a whole was lower with green exchange rates than it would have been in the hypothetical situation in which the Common Agricultural Policy continued to exist, but green exchange rates did not. Moreover, it was argued that by keeping the actual average level of EEC agricultural prices down, the green exchange rate system had positive welfare effects. The allocation of production and consumption of agricultural goods between the EEC and the rest of the world depends on the price ratio between the EEC and world prices for these products. The green exchange rate system will therefore have positive welfare effects in the sense of improving the allocation of agricultural resources if it brings EEC prices more in line with world trends, and this has usually implied lowering EEC agricultural prices, which have generally tended to be above world levels.

As will be argued in Chapter 3, these empirical studies illustrating the beneficial effects of green exchange rates on prices are by no means decisive. Given the interrelations in any economy, such price effects are best assessed in a general equilibrium framework, but almost all the empirical studies of the impact of green exchange rates on
prices rely on partial equilibrium analysis. In Chapter 3 the limitations of this type of approach will be pointed out, and a more viable alternative suggested.

Although until 1979 the net effect of the green exchange rate system was to lower the actual average level of EEC agricultural prices, subsequently this was no longer true, as will be shown in Chapter 3. Since 1979 there has been a virtual disappearance of MCA's in countries with depreciating or devalued currencies. As will be shown in Chapter 3, this is largely due to a growing awareness on the part of governments, farmers, and farm organisations that the cost of using green exchange rates to ease inflationary pressures is too high in view of the adverse effects of green exchange rates on trade, and the market situation of farmers in those countries.

iii) The effect of allowing increased national autonomy in agricultural policy

The objective of the first use of green exchange rates was to relieve inflationary pressures in France, while their application in the FRG later in 1969 was aimed at avoiding a sudden fall in farm prices. In each case green exchange rates were used to accommodate differing national exigencies, and although this was not an objective, it was an important effect of green rates which
has frequently been used in defence of the system.

The green exchange rate system has returned a certain autonomy to the member states in fixing the level of national agricultural prices and so allowed EEC agricultural policy greater flexibility in meeting the differing national needs and objectives of EEC countries which arise from the differences in their farm structure and in their economic and agricultural performance.

The defence of green exchange rates is generally found in conjunction with arguments in favour of the system because of its positive (at least until 1979) welfare effects. These two types of argument will therefore be discussed together in Chapter 3, where it will be shown that although the green exchange rates do allow EEC agricultural policy more flexibility, this is not achieved, as was originally assumed, without adverse consequences for trade and the allocation of resources in the EEC.

iv) The objective of cushioning sudden price changes after an exchange rate change which would otherwise disrupt the agricultural sector.

The 1971 Regulation stated a major aim of the green exchange rate system as being to cushion the sudden price changes following an exchange rate alteration, which
would otherwise disrupt agricultural developments in that country. The importance of these price changes is not per se, but in view of their implications for the agricultural sector.

In this context two aspects of the agricultural situation are generally considered to be of particular importance, and these number among the Article 39 objectives, namely:— the realisation of a fair standard of living for farmers, and the optimalisation of the allocation of resources which forms part of a) above. Chapter 4 will explain what each of these objectives entails, and will show how the market situation of farmers may serve as an indication of the extent to which each has been achieved.

The sudden price changes which follow an exchange rate alteration may alter the market situation of farmers in a way which is detrimental to the achievement of one or both these objectives. The disruption of the agricultural sector which is feared after an exchange rate change can therefore be taken to refer to these adverse changes in the market situation of farmers. In consequence the objective of green exchange rates becomes to prevent the sudden price changes following an exchange rate alteration, and thereby offset changes in the market situation of farmers.

Chapter 4 will analyse the conditions necessary for green exchange rates to achieve this objective, while Chapter 5 will present the results of an empirical analysis which indicate that these conditions do not hold in practice and that green exchange rates themselves
alter the market situation of farmers in a way which hinders these two Article 39 objectives.

v) The objective of preventing the functioning of the common market from being undermined by currency fluctuations.

According to the 1971 Regulation, a major objective of the green exchange rate system is to prevent the functioning of the common market from being undermined by exchange rate changes. Certain aspects of that this entailed have already been discussed, as for instance the aim of allowing Community preference and common financing to continue, and of preventing the objectives of Article 39 from being undermined. However, that is probably the most important element of the common market, common prices, remains to be considered, and this omission will be remedied.

There is widespread agreement that the green exchange rate system has reduced the principle of common ESC prices for agricultural products to a myth, but there is less agreement about the implications of this. Common prices were designed to facilitate free intra-ESC trade for agricultural products, and at least until the mid-1970's, while the ESC Commission agreed that the green exchange rate system had undermined common prices, it denied that this had any adverse effects on trade. This
opinion has since been reversed, but nonetheless it seems worthwhile in Chapter 6 to list the various ways in which the system has led to trade distortions, and to carry out empirical analysis to assess the scale of some of these distortions.

From this discussion it is evident that green exchange rates have not done very well in meeting their objectives and avoiding adverse side effects. In addition the cost of the system has at times been substantial, and the additional burden to the EEC Budget as a result of green exchange rates will be illustrated in Chapter 7.

Another claim against the green exchange rate system is that it may have an unfavourable impact on the balance of payments of the weaker currency countries, but Chapter 8 will show that this claim is generally based on a rather simplistic account of balance of payments effects.

One reason why the green exchange rate system does not do very well in meeting its objectives is that the stated objectives may serve simply as a cover for the real motives behind introducing the system. Rather than being a policy rationally decided on the basis of the desired objectives and likely effects, the green exchange rate system could be regarded as the outcome of the way in which conflicting interests are combined in the political bargaining process both on a Community level and in the individual member
states. Chapter 9 will illustrate how these political aspects may determine the decisions made concerning the agrimonetary system.

Given the poor performance of the green exchange rate system in failing to meet many of its objectives and giving rise to negative side effects, there seems a strong case for reform of the system. The discussion of Chapter 9 suggests that when assessing various reform proposals, account must also be taken of whether and how the reformed system will be manipulated in the political bargaining process. Various proposals are considered in Chapter 10, where the limitations of a reform actually introduced in 1979, the 'Gentleman's Agreement' will be pointed out. A proposal based on the combined use of taxes and subsidies, as presented in tariff theory will be rejected as being infeasible. Proposals to fix the level of MCA's so as to leave the market situation of farmers unchanged after an exchange rate alteration will be criticised since the underlying assumptions essential for the success of such proposals do not hold. Preference will therefore be expressed for a proposal which would entail abolishing green exchange rates, limiting future increases in common agricultural prices, and using a policy such as direct income supports to compensate farmers for, inter alia, exchange rate changes should this be considered necessary.
Footnote to Chapter 1

(1) The intervention system will be explained in more detail in Chapter 2.
Chapter 2

The Historical Development and Principles of Operation of the ESC Agrimonetary System

This Chapter consists in a rapid review of the major events in the history of the ESC agrimonetary system in order to explain the basic principles underlying its present operation. If a more complete or detailed description of the system and its evolution is required, a bibliography is provided in Footnote 1.

The history of the agrimonetary system falls into three main phases, the first of which dates from 1967 to 1969 and was a time of implementing common agricultural prices and of relative monetary stability. The currency disturbances after 1969 meant that neither of these conditions prevailed, and the second period extends from 1969 to 1979. After 1979 there were new initiatives for a return to common agricultural prices, and to exchange rate and monetary stability in the ESC and this characterises the third period.

The 1967-69 Period

The existence of green exchange rates is the direct result of common agricultural prices in the ESC. Indeed the green exchange rate system is simply the means of converting those
common prices into the national currencies of EEC member states.

The Treaty of Rome envisaged common agricultural prices as the best means of reducing competitive distortions and of enabling the free intra-EEC agricultural trade desired by the French. After long negotiations, the first common agricultural prices came into operation in 1967 when the EEC machinery necessary to decide on, administer and finance those prices was also established. Common agricultural prices therefore entailed vast expansion of EEC institutions and powers, and it was optimistically believed that this would spill over and induce European integration in other spheres. (2)

Since 1967 the common level of prices for various agricultural products has been decided annually at a meeting of the Council of Agricultural Ministers in Brussels. These prices are known as market regulation prices (3) and are denominated in units of account. Until 1971 one unit of account corresponded to the gold content of the US $ (4) but since April 1979, the European currency unit or ECU has been used as the unit of account for agricultural purposes.

The exchange rate used to convert the unit of account and hence agricultural prices expressed in units of account is termed the agricultural conversion rate and this later became known as the green rate. Until 1969 the agricultural conversion rates were equivalent to the par currency rates, so moved with the market exchange rates. A conversion formula (5) serves to show how this operates in the specific
The case of the FRG over the 1967-1969 period:

1) \( P^{\text{DM}} = P^{\text{ua}} \)

where:

- \( P^{\text{ua}} \) = common prices for agricultural products expressed in units of account
- \( P^{\text{DM}} \) = prices for those products in national currency
- \( e^{\text{ua}} \) = agricultural conversion rate which was equivalent to the par rate for Deutsch marks in units of account until 1969.

As expressed above, the conversion formula is product specific and assumes homogeneity of the product. Equivalent formulae can be derived for each of the market regulation products, but for convenience, here analysis is restricted to a single representative product.

During the 1967-69 period, the price of the market regulation products in national currency was obtained in the same way for all member states of the EEC, so that for instance a similar conversion formula could be written for Italy.

2) \( P^{\text{it}} = e^{\text{it}} P^{\text{ua}} \)

where:

- \( P^{\text{it}} \) = the price of the market regulation product in lira, and \( e^{\text{it}} \) = the par rate for lira in units of account

Between 1967 and 1969, the currencies of the EEC were relatively stable so the ratio between the unit of account agricultural conversion rates between two countries, say Italy and the FRG, corresponded to the par currency rate between these two countries, that is:

3) \( \frac{e^{\text{DM}}}{e^{\text{it}}} = \frac{e^{\text{DM}}}{e^{\text{ua}}} \)
As a result the existence of a common EEC price level for any market regulation product is evident from a comparison of the various price levels expressed in national currencies.

\[ P_{Dm}^{Dm} = \frac{P_{lit}}{e_{ua}^{lit}} \]

\[ P_{Dm}^{ua} = e_{ua}^{lit} \cdot P_{lit} \quad \text{and} \quad \frac{e_{ua}^{Dm}}{e_{ua}^{lit}} = e_{lit} \]

\[ P_{lit}^{ua} = e_{lit}^{ua} \cdot P_{Dm}^{Dm} \quad \text{and} \quad \frac{e_{lit}}{e_{Dm}^{ua}} = e_{Dm}^{lit} \]

From this it can be seen that during the 1967-69 period the agricultural conversion rates, which were the precursors of the green exchange rates were simply a mechanism to enable the functioning of common prices for EEC agricultural products.

The 1969-1979 Period

i) The currency fluctuations

In August 1969, the French franc was devalued and in October of that year the FRG revalued, marking the beginning of a time of currency fluctuations in the EEC countries. These exchange rate changes between EEC countries made it evident that monetary and economic co-ordination between the EEC states was inadequate and the response was a series of proposals calling for new
initiatives in this sphere. In February 1969 the Barre Plan of the EEC Commission called for greater monetary and economic co-ordination in the EEC, and by December 1969, at the Hague Summit, there was a commitment by the EEC prime ministers to create economic and monetary union (EMU). To achieve this end relatively far reaching machinery for consultation and co-operati was set up, and the Werner Committee was formed. The Werner Report of 1970 called for EMU by 1980. It proposed fixing EEC currencies against each other and expressed a preference for a joint Community currency. The Council agreed that the first transitional phase would be enacted from 1971—73.

Despite such a promising outlook for a common EEC initiative, the Werner Plan soon lost momentum and currency disturbances continued unabated, becoming generalised in a system of floating (joint or otherwise) from 1973. Later proposals to advance EMU such as the All Saints Manifesto, and the Tindemans Report were not adopted, while studies such as the Marjolin Report had little practical impact.

A continuing theoretical interest in furthering EMU was therefore combined with a stagnation of practical attempts to further that end between 1972 and 1977. The absence of practical achievements over this period is partly due to the emergence of an extremely unsettled international monetary situation at this time, which urgently required remedy. However it also represents a temporary shelving of initiatives towards European integration, since, as H. Christie and M. Fratianni say:—

"The political will necessary for success was absent: there
was so little disposition on the part of member countries to forgo ... political advantage in the interest of wider Community objectives."

By 1977 however there was a revival of interest in practical moves to advance E.E.U., evident in the Belgian commitment to take steps towards this during their Presidency of the EEC Council in 1977; in the Jean Monnet Lecture of Roy Jenkins at the European University Institute, and in the introduction of E.E.S in 1979. This revived interest in practical initiatives was based on the conviction that flexible exchange rates were not aiding and may even have been hindering economic convergence between EEC states.

Though the debate about the effectiveness of exchange rates as a policy instrument is by no means over, various empirical studies (9) found that in the long run exchange rate changes only altered external equilibrium under certain conditions, since it was impossible to shift the terms of trade far from their equilibrium level. It was claimed that in the short run, the main impact of exchange rate alterations was to allow a country to choose its own monetary policy and inflation rate. Exchange rate and monetary policies were often preferred by governments as they may be less painful than budgetary or income policies, though the frequent use of such monetary instruments weakens money illusion, and makes the short run ever shorter. The floating exchange rates of the 1970's were therefore said to imply a certain "permissiveness" in policy options, and contributed far less
than expected to external equilibrium.

A theoretical explanation for these findings was provided either by the monetary hypothesis which questions whether exchange rate policy can produce real changes in the economy, or by the virtuous - vicious circle hypothesis. The latter maintains that as a result of overshooting, currency depreciation may induce an inflationary spiral while appreciation dampens inflation, so that exchange rate moves may widen the divergence between the economic performances of EEC states.

Despite the renewed interest in implementing EMU from 1977, between 1972 and 1977 huge currency fluctuations continued between EEC states, with little practical attempt at a common EEC response to resolve this situation.

The response of the agrimonetary system to exchange rate changes over the 1969 - 79 period

The way in which the agrimonetary system was adjusted to meet the currency fluctuations after 1969 also entailed a greater leeway for national autonomy in policy-making, which partly undermined the common agricultural prices established over the 1967 - 69 period.

When the CAP was first enacted, it was thought that common agricultural prices would make parity changes between EEC countries impossible, so that proposals such as that of Manjolin in 1967 to draw up rules enabling the agrimonetary
to react to currency changes were regarded as defeatist. (12)
The result of this excessive optimism was that in 1963, when
exchange rates actually altered, a satisfactory automatic
procedure for the response of the agrimonetary system did
not exist. (13) This was the first of many occasions where
development of the EEC agrimonetary system was determined
by an unplanned response to an unforeseen contingency.

One possible response would have been to leave the
agrimonetary system unchanged and allow the full impact of
exchange rate changes to apply also to the agricultural
sector. It is clear that from equations 1 and 2 above, this
would entail a change in the unit of account conversion
rate and so in the market regulation price for agricultural
products expressed in national currency. For a revaluation
of the exchange rate by $\xi$, the unit of account conversion
rate and so the market regulation prices expressed in
national currency will (ceteris paribus) both fall by

$$y \% \text{ where } \left(1 \frac{100}{100 + \xi} \right)^{y}$$

Similarly for a devaluation, domestic currency prices
will rise by slightly more than the devaluation percentage.

It should however be noted that these changes in
domestic currency prices will be completely offset by
changes in the unit of account conversion rate. For instance
given a Deutsch mark revaluation by $\xi$, the unit of account
conversion rate and market regulation prices in Deutsch
mark both fall by \( y \%), that is:

\[
8) \quad \frac{e_{\text{lit}}}{u_{\text{lit}}} = \frac{e_{\text{ua}}}{u_{\text{ua}}} \cdot (1 - y) P^{D_m} \quad \frac{P^{D_m}}{(1 - y) u_{\text{ua}}}
\]

which reduces to:

\[
\frac{e_{\text{lit}}}{u_{\text{lit}}} = \frac{e_{\text{ua}}}{u_{\text{ua}}} \cdot P^{D_m} \quad \frac{P^{D_m}}{u_{\text{ua}}}
\]

Thus if the exchange rate change is applied fully to the agricultural sector, without compensatory measures, common ESC prices are preserved, and the free trade objective survives intact.

A major problem arises however in that applying the exchange rate change to the agricultural sector implies sudden changes in the domestic currency prices of market regulation products and this may have severe consequences for the country concerned. For example, in 1969 the French were reluctant to allow the full impact of devaluation on agriculture since (as explained in Chapter 1) this would have meant an increase in food prices incompatible with anti-inflationary objectives, and the German government was unwilling to allow the full impact of revaluation on agriculture as this would reduce farm prices and possibly incomes.

Theseudden shifts in the agricultural prices of a country could be avoided by applying the exchange rate
to all except market regulation products, and having another
agricultural conversion rate (15) solely for those products.
This is the basic principle of the green exchange rate system
which allows changes in the agricultural conversion rate to
lag behind those in the market exchange rate, so the agri-
cultural conversion rate, which is called the green
or representative rate, may differ from the exchange rate.
This system was first used by the French in 1969, and by the
Germans later in that year.

The effect of allowing a green rate to lag behind
appreciation of a country's currency is to keep prices
higher than they would be if converted at the new market
exchange rate (by y% in the example of an 5% German
revaluation). Similarly where green exchange rates lag
behind depreciation of a currency, prices for market
regulation products will be lower than they would be
converted at market exchange rates, both in terms of
units of account, and ceteris paribus, other countries' currencies.

The EEC intervention system entails that the govern-
ments of member states guarantee to buy certain agri-
cultural products where this is necessary to prevent
their prices falling below the annually agreed minimum
level. In the absence of compensatory measures, the
difference between the green and market exchange rates
together with the intervention system would provide
an incentive to commodity-currency arbitrage and speculative trade flows. To prevent this occurring, the introduction of green exchange rates was accompanied by a system of border compensations, which later became known as monetary compensatory amounts (MCA’s). MCA’s allow the difference (when considered at market exchange rates) in the prices for market regulation products between EEC countries to continue, but offset the impact of those price differences on trade. This entails MCA’s acting as a tax on imports and a subsidy on exports in revaluing countries, and when MCA’s operate this way, they are called positive MCA’s.

In countries with depreciating currencies MCA’s act as an import subsidy and an export tax in order to maintain lower prices in that country and are known as negative MCA’s. The functioning of MCA’s can be illustrated by a diagram:

- FRG price
  positive German MCA which acts as an import levy and an export subsidy to keep German prices above common levels.

"common" EEC price
  negative Italian MCA which acts as an import subsidy and export tax to keep Italian prices below the "common EEC level

Italian price
As mentioned in Chapter 1, the system of green exchange rates with accompanying MCA's was formalised by an EEC Regulation of 1971, and was allowed to develop virtually unchecked until 1979.

From 1972 MCA's were also applied on agricultural trade with countries outside the EEC. This entails adjusting the EEC import and export levies and refunds applied on trade with third countries by an amount depending on the MCA level of the EEC country involved in such trade.

iii) Conclusions about how the agrimonetary system operated between 1969 and 1979

Not only did introduction of the green exchange rate system allow increased national autonomy in fixing the level of agricultural prices, thereby undermining common EEC prices, but it also entailed barriers on intra-EEC trade in the form of MCA's. In this way much of the progress made prior to 1969 in implementing common policies for agriculture was undermined between 1969 and 1979.

Table 1 indicates that over the 1969-79 period negative MCA's which enable lower prices in countries with depreciating or devalued currencies outweighed the positive MCA's to a considerable extent. This implies that the net effect of green exchange rates was to lower the average actual level of EEC agricultural prices below what they would have been in the absence of the system, though still with the
Common Agricultural Policy. As will be shown in Chapter 3, it therefore appears that the green exchange rate system realised its objective of easing inflationary pressures in member states with depreciating or devalued currencies, and in the EEC as a whole over this period.

The European Monetary System since 1979

i) The EMS

The resumed discussion of EMU from 1977 led in 1979 to the establishment of the EMS or European Monetary System. This is not the place for a detailed discussion of the EMS so here the main features of the system will simply be sketched.

The EMS is not a fixed currency system which excludes exchange rate changes, but it does entail limiting of the margin of fluctuation between all EEC currencies except
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<th>Italy</th>
<th>Benelux</th>
<th>UK</th>
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<td>-14.6</td>
<td>3.6</td>
<td>-24.1</td>
<td>-3.3</td>
<td>-</td>
</tr>
<tr>
<td>1979/1</td>
<td>10.3</td>
<td>-14.3</td>
<td>-14.4</td>
<td>3.3</td>
<td>-17.2</td>
<td>-1.5</td>
<td>-</td>
</tr>
<tr>
<td>1979/2</td>
<td>10.4</td>
<td>-5.7</td>
<td>-10.5</td>
<td>3.3</td>
<td>-15.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1980/3</td>
<td>10.4</td>
<td>-4.4</td>
<td>-7.1</td>
<td>3.3</td>
<td>-13.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1980/4</td>
<td>10.4</td>
<td>-3.7</td>
<td>-5.6</td>
<td>1.9</td>
<td>-8.2</td>
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<td>-</td>
</tr>
<tr>
<td>1981/1</td>
<td>10.4</td>
<td>-3.7</td>
<td>-7.3</td>
<td>2.4</td>
<td>-5.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1981/2</td>
<td>10.4</td>
<td>-1.4</td>
<td>-6.1</td>
<td>3.8</td>
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<td>1981/3</td>
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<td>-1.0</td>
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<td>-4.0</td>
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<td>1981/4</td>
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<td>-4.0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) 1972 estimates are based on Irving and Peam(25) Green Money and the CAP, Wye College, Kent, and C. Bandinelli, tesi di laurea Università di Siena. 1973-77 data is based on S. Tarditi(76) Currency Interference and the CAP, MGAs, Economic Notes, 7/1 Later data is taken from Agra Europe and consists of weighted averages of weekly MGAs.
sterling. In addition the EMS includes an informal agreement to co-ordinate monetary and other policies and the creation of new short and medium term credit facilities for EMS members.

So far the features listed make the EMS seem like an updated, extended version of the snake, but the EMS also included certain technical innovations which, if followed up, suggest a far more fundamental move towards EMU.

The EMS involved introduction of the European currency unit or ECU, which, as shown in Table 2, is a basket of fixed amounts of the 9 EEC currencies. The central rate of all EEC currencies accepting margins of fluctuation (that is all except the UK) is defined in terms of the ECU, and as a corollary, the ECU serves as a basis for indicating exchange rate divergence. To a limited extent the ECU also serves as a means of settlement between central banks. Since April 1979, as will be discussed, the ECU has been used as a unit of account for agricultural purposes. The ultimate aim is to develop the ECU as a fully-fledged EEC currency, but realisation of this aim seems to be stagnating.

The EMS was also accompanied by the proposal to have a European Monetary Fund which would act as a form of EEC central bank, but here too revived initiative seems necessary for implementation.

ii) The present EEC agricultural system

The operation of the EEC agricultural system since 1979 reflects a revised emphasis on common EEC action, which is evident not only from the way in which the EMS was applied
### Table 2. The Impact of EMS on the Agrimoney System

<table>
<thead>
<tr>
<th>Country</th>
<th>Currency</th>
<th>ECU basket amount</th>
<th>ECU Central rates a</th>
<th>Values converted to ECU b</th>
<th>Weighting (par cent)</th>
<th>MCA percentage, 1980/81 c</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5) From October 5, 1981</strong></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A. Belgium/Lux.</td>
<td>Bfr</td>
<td>3.80</td>
<td>40.7572</td>
<td>3.80</td>
<td>9.3</td>
<td>0.0</td>
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<td>West Germany</td>
<td>DM</td>
<td>0.828</td>
<td>2.40939</td>
<td>14.00352</td>
<td>34.4</td>
<td>+11.4/ +8.3</td>
</tr>
<tr>
<td>Netherlands</td>
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<td>Denmark</td>
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<td>7.91117</td>
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<td>6.17443</td>
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<td><strong>3. Italy</strong></td>
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<td>C. UK</td>
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<td>(0.501043)</td>
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</tr>
<tr>
<td><strong>4) From March 23, 1981</strong></td>
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<td>2.81318</td>
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</tr>
<tr>
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<td>Fr</td>
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<td>5.99526</td>
<td>7.8258949</td>
<td>19.2</td>
<td>- 1.0</td>
</tr>
<tr>
<td>Ireland</td>
<td>E1</td>
<td>0.00759</td>
<td>0.651543</td>
<td>0.4519632</td>
<td>1.1</td>
<td>- 2.4</td>
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<tr>
<td><strong>3. Italy</strong></td>
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<tr>
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<tr>
<td><strong>3) From November 30, 1979</strong></td>
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<td>2.74262</td>
<td>4.1477510</td>
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<td>+ 2.2/ +1.7</td>
</tr>
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<td>5.84700</td>
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<td>0.0</td>
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<tr>
<td>Ireland</td>
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<td>1.1</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>3. Italy</strong></td>
<td>L</td>
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<td>1 157.79</td>
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<td>(-1.7)</td>
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<td>(0.649101)</td>
<td>5.4232235</td>
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</tr>
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<td><strong>2) From September 24, 1979</strong></td>
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<tr>
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<td>39.8546</td>
<td>3.80</td>
<td>9.5</td>
<td>2.4/ +1.9</td>
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<td>West Germany</td>
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<td>2.48557</td>
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<td>4.1477510</td>
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<td>+ 2.4/ +1.9</td>
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</tr>
<tr>
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<td>1.1</td>
<td>- 1.3</td>
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<tr>
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<td>5.4261735</td>
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<tr>
<td><strong>1) From April 9, 1979</strong></td>
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<td>39.8456</td>
<td>3.80</td>
<td>9.6</td>
<td>+ 3.3</td>
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<td>2.48557</td>
<td>13.273476</td>
<td>33.3</td>
<td>+ 10.7/ +9.7</td>
</tr>
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<td>2.74262</td>
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<td>10.4</td>
<td>+ 2.4/ +1.9</td>
</tr>
<tr>
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<td>7.36594</td>
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<td>2.9</td>
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</tr>
<tr>
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<td>Fr</td>
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<td>5.25522</td>
<td>7.8259124</td>
<td>19.6</td>
<td>- 5.3/0.0</td>
</tr>
<tr>
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<td>1.1</td>
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</tr>
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<td>1 142.15</td>
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<td>(-17.2/-11.3)</td>
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<td>(0.642225)</td>
<td>5.2528712</td>
<td>12.8</td>
<td>(-22.0/-16.8)</td>
</tr>
</tbody>
</table>

A. Currency amounts for one European Currency Unit; b) Belgian Central rate divided by the Central rate of the currency concerned, multiplied by its basket amount; c) UK and Italian MCA's are variable and the rates shown are the first to be calculated on the new Central rate basis following EMS implementation or subsequent realignments.

A. Central rates held within narrow margin of fluctuation (cross-rates held to within +/- 2.25%).
B. Central rate with wide margin (cross-rates held to within +/- 6.0%).
C. UK "imputed" Central rate as the UK is not part of the monetary system.
to the agrimonetary system, but also because the French made
their acceptance of EMS dependent on a reform of the green
exchange rate system. The reform of the system finally
agreed on was known as the 'Gentlemen's Agreement'. The
prospects and implications of this reform will be discussed
in Chapter 10, where it is shown that its aim is to limit
the scale and time period for which future MCA's are applied
and in this way it is hoped to reduce the impact future
MCA's will have in undermining common prices and the free
intra-EEC trade of agricultural products.

Two aspects of EMS in particular implied changes in
the agrimonetary system: the new margins
of fluctuation, and the introduction of the ECU, and these will
now be described.

ii/a The effect of the new margins of exchange rate fluctuation
on the agrimonetary system.

When the EMS was established in 1979, all the then EEC members
became full participants, with the sole exception of Britain,
whose signatory status allowed the possibility of full
participation later on. Apart from Italy all full participants
are committed to maintaining movements in their exchange rate
to a ± 2.25% band around the central rate (defined in ECU)
of their currency. Italy agreed to restrict movement of the
lira to a wider band of ± 6.00% around its central value.

Following the enlargement of the EEC in 1973, a distinction
was made between fixed MCA's forsnake members, and variable
KCA's for the other floating currencies. This distinction continued after 1979, though with the changes implied by replacing the now defunct snake with the EMS. Since April 1979, fixed MCA's have applied for those countries keeping their currencies within the narrow ±2.25% band around their central rates, while Britain and Italy (and now also Greece) have variable MCA's.

The underlying principles for calculating MCA levels very briefly described for the 1969–79 period remained largely unaltered after April 1979. Essentially the MCA level is determined by the difference between the green and exchange rates, and is then applied to the intervention prices for market regulation products in that country. Since 1979 there has been a change in what exchange rate is compared with the green rate, and this together with the greater steadiness so far exhibited by EMS members has meant smaller MCA's. To show how this occurs, the method of calculating fixed and variable MCA's will now be explained.

ii/a/i The calculation of fixed MCA amounts

Prior to 1979 the level of a fixed MCA depended on the comparison of the green rate and the par rate of snake members. Now any of the seven narrow-band EMS countries may apply a fixed MCA, which is based on the difference between the green rate and central rate of a country. Exactly how the level of a fixed MCA is calculated is best illustrated by an example, such as France.

In April 1979 the French fixed MCA was negative, so for trading purposes it was necessary to apply an MCA which
would act as an import subsidy and an export tax and raise French prices to a 'common' ESC level.

The first stage in calculating the fixed MCA level is to compare the green and central rates using the following formula and the result is called the MCA percentage.

\[
(1 - \frac{\text{green rate in ECU}}{\text{central rate in ECU}}) \times 100
\]

In April 1979 the French green rate in ECU was .184265 for all market regulation products except cereals and sugar, and the central rate in ECU was .172464 so that the French MCA percentage for those products was:

\[
(1 - \frac{.184265}{.172464}) \times 100 = -6.8\%
\]

This is the gross MCA percentage which is then subject to a fixed deduction or franchise. The aim of the franchise is to reduce the burden of MCA's on the ESC Budget. The franchise entails a 1.5% reduction \(^{18}\) for a negative MCA and a 1% reduction \(^{19}\) for a positive MCA percentage. The French gross percentage is therefore cut by the 1.5% franchise to a net MCA percentage of -5.3%.

The MCA percentage has then to be applied to intervention prices to derive the actual MCA amount to apply on trade. The MCA amount is expressed in national currency per unit of product, for example francs per tonne. For most products \(^{20}\) the MCA amount is estimated by multiplying the MCA percentage by the intervention price in ECU for the product applying in that country and then converting the result into national currency using the green rate of that country. For instance
assume an agricultural product with a French intervention price of 100 ECU per tonne, then multiplying the French net MCA percentage of 5.3% by the intervention price gives - 5.3 ECU per tonne, which is converted at the French green rate of .184265 to obtain a French MCA amount of - 28.7 francs per tonne.

The main difference in the system of calculating fixed MCA amounts since 1979 is therefore that the central rate has replaced the par currency rate in the estimation of the MCA percentage. The central rate of a currency is now defined in ECU. As the ECU is a basket of 9 currencies, if one of those currencies alters in value, so too will the ECU and hence the ECU - defined central rates. As a result a change in the value of any of the 9 ECU currencies will induce changes in the fixed MCA percentages of the 7 narrow - band EMS countries. The size of these MCA changes depends on the weight of the altered currency in the ECU basket, and the extent to which that currency is altered. For instance a 5% revaluation of the Deutsch mark, which has a weight of 33% in the basket will cause a greater change in all fixed MCA percentages than will a 5% Danish devaluation, the kroner weight being only 3.1%.
Calculation of the variable MCA amounts for Britain, Italy and Greece is more complex. As in the case of fixed MCA's, the first stage is to derive the MCA percentage. The variable MCA percentage of a country is based on the market rate of that country against each of the narrow-band EMS currencies over a five day monitoring period, and on that country's green rate relative to the central rates of each of the narrow-band EMS currencies. The monitoring period runs from Tuesdays to Wednesdays since it only operates on weekdays.

The variable MCA percentage is then applied to intervention prices in the same way as the fixed MCA percentage in order to derive the MCA amounts. Changes in MCA's only occur on Mondays and only if the MCA percentage alters by more than 1% from week to week, and the aim of this is to limit fluctuations in MCA amounts.

The purpose of linking variable MCA's to the central rates of the narrow-band currencies is to make the level of variable MCA's dependent on how the market rate or green rate of the country in question moves relative to the exchange rates of other ESC states.

The corollary of this is that if any of the 7 narrow-band currencies alters, so too will the variable MCA percentages. Moreover if any of the 9 (excluding Greece) ESC exchange rates alters, so too will the ESCU and hence the ESCU-defined central rates of the narrow-band currencies, thereby inducing a change in all fixed and variable MCA levels. In this way a
considerable degree of interdependence has been introduced into the agrimoneetary system and the size of future MCA's has been made dependent on the degree of stability between EEC currencies with greater stability likely to result in smaller MCA's.

The changes in the value of the SCU, ECU defined central rates and in MCA's as a result of exchange rate alterations are shown in Table 2 above. (23) It is significant that on each occasion since April 1979 where exchange rate changes would have increased or led to the introduction of new MCA's, measures (and in particular application of the franchise and adjustment of green rates (24)) were taken to reduce, if not prevent, the extent to which this occurred.

ii/b The Use of the ECU to Express Common Agricultural Prices

Since 1979 common agricultural prices have been expressed in ECU rather than in the snake unit of account. The ECU used to set agricultural prices differs slightly from the full ECU since it is only based on the 7 narrow-band currencies and not the 9 EEC currencies (excluding Greece).

ii/b/i The Impact of Using the ECU on Common Price Levels

Until April 1979, expressing common agricultural prices in terms of the snake unit of account meant that any appreciation of the snake currencies increased the value of the unit of account and hence the annually agreed price levels, vis à vis third countri. A. Svinbank (25) has estimated that the link to the snake caused the unit of account to appreciate in value by 54% against the US $ between 1971 and 1978.
An equivalent calculation can be made for how the agricultural and full ECU would have moved against the dollar and other currencies during this period. Taking values of exchange rates from the International Financial Statistics of the IMF, the dollar in the 1960 century at 1960/70, it is estimated that the value of the full ECU appreciated by only 7.5% and that of the agricultural ECU by 7.1% against the U.S. dollar over the 1971-8 period.

The sharp rise in the price of copper against the dollar over this period arises because the price was bid up on the market than the strong surpluses. Though it is too early to draw conclusions, the recent trends of the dollar relative to other currencies were significant. The trend from 1960/70 to 1980/81 the value of the full ECU fell by 0.2%, and that of the agricultural ECU by 2.6%.

However, the rise in the price of copper has not been influenced by the volatility of the dollar and就是 over the same period. The dollar has been more volatile against the 1960/70, but has been relatively stable against the U.S. dollar over the 1971-8 period against third currencies.

Chapter 6: The effect of introducing the agricultural ECU on world trade

By defining the value of the full ECU and of the agricultural ECU, we can draw the price of copper above the dollar, which has been relatively stable against the U.S. dollar over the 1971-8 period against third currencies and

..
have been smaller and the agricultural prices—higher, given a broader based unit of account. Similarly, because the previous unit of account was based on an unweighted average of the snake currencies, the appreciation of the strongest, the Deutsch mark was underestimated, so the German positive MCA was smaller and German agricultural prices were lower than they would otherwise have been.

In April 1979 the way in which the snake unit of account was replaced by the agricultural ECU was such as to minimise immediate changes in MCA levels. However because the agricultural ECU has a broader basis than the snake unit of account, future MCA levels are likely to be more equitable. Insofar as the EMS can restrain currency divergencies between ESC countries, more equitable MCA's will not necessarily mean higher MCA's. This is evident from the example above where the German positive MCA was too small because the Deutsch mark appreciated more than the other ESC currencies. If the EMS limits Deutsch mark appreciation, introduction of the agricultural ECU will not mean larger positive German MCA's.

Conclusion

From this Chapter it is evident that developments in the ESC agrimonetary system have paralleled those in the exchange rate and monetary sphere, with practical initiatives towards common ESC policies characterising the periods from 1967-69, and after 1979. Between 1967 and 1969 common agricultural
were first enacted, while the introduction of EMS from 1979 entailed greater interdependence between EEC countries (except Britain) which extended also to the agrimoney system and through it, to agriculture as a whole.

In contrast the operation of the agrimoney system between 1969 and 1979 undermined such progress as had been made in realising common prices and free trade for agricultural products, though it did succeed in easing certain inflationary pressures and allowing the member states increased autonomy in fixing their price levels.
Footnotes to Chapter 2

(1) For a more detailed account of the history of MCA's see:
- P. Baudin (69) *Politique monétaire et politique agricole*, Revue du Marché Commun; COM (77) 480 and COM (78) 20 of the EEC Commission;
- C. Baldinelli (80) in *Il Sistema Agronometario; gli effetti degli importi compensativi monetari*, Quaderni della "Rivista di Economia Agraria", Il Mulino;
- C. MacIcel (78) *Green Money and the CAP*, Westminster Bank Quarterly Review, and
- The Development, Role and Effects of Green Money in a Period of Instability, North of Scotland College of Agriculture, Bulletin 13;
- A. Swinbank (76) *The British Interest and the Green Pound*, Centre for Agricultural Strategy, Paper 6, Reading;
- V. Saccomandi (73) *Avvenimenti internazionali e loro riflessi sulla PAC*, Rivista di Economia Agraria 75/3.

(2) See S. Haas (58) *The Uniting of Europe*, Oxford University Press.

(3) In fact minimum prices, which are usually intervention prices, and maximum prices, or target prices are agreed for market regulation products, and the actual market prices for these products are allowed to fluctuate in the corridor between these two limits. Market prices are prevented from falling below intervention prices by national authorities buying up (or intervening) surpluses of the product. The target price is equivalent to the
(3) cont'd. ...the threshold price at which imports of those products can enter the ESC from third countries, with transport costs to the ESC market centres deducted. Given the problem of agricultural surpluses in the ESC, the (minimum) intervention prices have more significance than the maximum prices and it is on intervention prices that the agrimonetary system is, for the most part, based. In the following discussion in the text market regulation prices can generally be interpreted to mean intervention prices.

(4) In calculating the net receipts from the CAP Budget, the gold parity unit of account was used until 1971 when suspension of dollar convertibility led to the dollar value unit of account. This was replaced in 1973 by the ECU unit of account, which lasted until 1979 when the ECU was applied to agriculture, as described later in the Chapter.

For calculations of budgetary contributions, the gold parity unit of account survived until January 1978, when it was replaced by the EUA, or European unit of account. The EUA is a composite basket of the 9 ESC currencies (excluding Greece) whose value changes if the exchange rate of one of those currencies does. The value of the EUA is identical to that of the ECU, though the ECU, unlike the EUA, has a clause allowing changes to be made in its composition (see Bulletin EC 4-1980, p. 99 for further explanation).

(5) P.M. Schmitz(79) Der Grenzausgleich im Agrarhandel, Wirtschaftsdienst 59/7 was the first to use this formula.
(6) Described in H. Ansau and M. Dessart (1975) *Dossier pour l'histoire de l'Europe monétaire*, Louvain

(7) The need for reform is discussed in J. Williamson (1974) *The Failure of World Economic Reform*.


(10) The monetary account of the exchange rate mechanism is discussed in some detail in Chapter 7.


(13) Certain extremely complex arrangements for adjusting the value of the unit of account existed, but only if all exchange rates of SEC countries changed in the same direction simultaneously, as is explained by H. Rodener (1974) in *Wechselkursanderungen und EWG-Agrarmarkt: die Kontroverse um den Grenzausgleich*, Kieler Diskussionsbetrag, 33.

(14) W. von Urff (1974) *Zur Funktion des Grenzausgleichs bei Wechselkursanderungen im System der EWG Agrarmarktordnungen. Agrarwirtschaft 5* was the first to use this formula.
In practice there may be different agricultural conversion rates for different market regulation products in a country, but for simplicity only one is considered here.

Isolation from exchange rate changes is only required for market regulation products, since these products alone have common EEC prices expressed in units of account. In consequence it is only these products which undergo an immediate change in their domestic currency price if the exchange rate change is applied to them.

The limits on this increased national autonomy, and the way in which it was used are described in more detail in Chapter 9.

Clearly however the impact of the agrimonetary system on actual average agricultural price levels will depend not only on the scale of negative MCA's relative to positive MCA's but also on the size of the agricultural sector in countries with negative MCA's relative to that in countries with positive MCA's.

T. Heidhues, C. Ritsch, T. Josling and S. Tangermann (77) in the article Common Prices and Europe's Farm Policy, Trade Policy Research Study, have used 1975 data to estimate that the abolition of green exchange rates would have increased the actual average level of EEC agricultural prices by approximately an additional 11% assuming that there was no change in the level of EEC self-sufficiency. A similar estimate for 1976 indicates a 7 1/2 % price increase had green exchange rates been abolished in the article by
(17) cont'd. ... C.Ritson and S. Tangermann (79) *The Economics and Politics of MCA's*, European Review of Agricultural Economics 5. However, as Chapter 3 will show, this type of estimate involves certain problems, but even allowing for a large margin of error it is safe to assume that at least the direction of the impact of the agrimonetary system on the actual average level of prices (i.e. downwards) is correct.

(18) First introduced in 1976

(19) The franchise on positive MCA's dates from Regulation 652/79 of 1979. Until April 1980 the franchise on variable positive MCA's was 1.5%, while that on fixed positive MCA's was 1%. Now the franchise on both fixed and variable positive MCA's is 1%.

(20) MCA's cannot be based on intervention prices for processed or non-annex 2 products such as biscuits and cakes, and other confectionary, so they are calculated on notional recipes. In view of the problems described by C. Mackel (ibid. Footnote (1)) the MCA for pigmeat is no longer based on the intervention price. Quality wine is also treated as an exception.

(21) See Agra Europe of 15/6/79, and Agra Europe of 28/9/79 for a concrete example of this which describes how the currency changes of September 1979 would have altered MCA levels had the franchise and adjustments of green rates not been applied.

(22) The Drachma is not yet included in the ECU, but if Greece remains in the EEC, the aim is to include the drachma by 31/12/...
The changes shown in the Table are the result of the following exchange rate adjustments. In September 1979 the Deutsch mark was revalued by 2% and the kroner was devalued by 3%; in November 1979 the kroner was again devalued by 5%; in March 1981 the lira was devalued by 6% and in October 1981 Germany and the Netherlands revalued by 5.5% while France and Italy devalued by 3%.

See Agra Europe of 26/9/79 for an example of this.

A.-Swinbank (ibid. Footnote 1).

These estimates are based on statistics taken from the EC Bulletins.

This development is described by C. Mackel, ibid. Footnote (1).

How this was achieved is described in CCM(77)480. Even applying the measures in CCM(77)480 the introduction of the agricultural ESCU would have meant a positive MCA for the first time in Ireland (of 2.6%) and altering the French MCA from -10.6% to 11.1% so this was avoided by freezing both the French and Irish MCA's.
Chapter 3

Welfare Effects and Flexibility of National Agricultural Policy Arising from the Agrimonetary System

In the literature, various authors have judged the agrimonetary system favourably claiming that it allows increased flexibility in agricultural policy-making, and that it has positive welfare effects. This Chapter will first analyse these claims in more detail, and will then illustrate why they are insufficient to warrant a favourable judgement of the green exchange rate system.

The Claim that the Green Exchange Rate System Allows the Necessary Flexibility to National Agricultural Policy

The argument that the agrimonetary system allows the flexibility to national agricultural policy which is necessary to take account of differing national needs and conditions is possibly best explained in an article by T. Heidhues, T. Josling, C. Ritsin and S. Tangenmann which says:

"In view of the great disparities between the member states in terms of economic performance and farm structure at present applying in the EC, the CAP must be flexible enough to take into account specific national circumstances...(the MCA system) appears remarkably well suited to the above requirements. MCA's have the merit of allowing countries considerable freedom in determining the level of their..."
domestic farm product prices and in general bringing about inter-country transfers which are politically acceptable and economically reasonable. But unlike any purely national agricultural pricing, the MCA system places limits on price divergencies and includes a degree of automation in their level. This allows the retention of common pricing. ... Also under the MCA system national prices are formally linked to a notional Community price. This can be interpreted as in a sense an act of faith that there will be a return to common pricing when the circumstances are more favourable for the creation of a true common market in farm products.

This view is also evident in articles by C. Ritson and S. Tangermann (2) and by A. Swinbank (3) who restricts his analysis (on this occasion) to the British viewpoint, and writing in the pre-Thatcher era, says:

"In the final analysis the UK Government must protect the interests of all UK citizens. If this interest indicates CAP price support levels below those sought by our partners then the concept of common farm prices must be jettisoned."

"To the extent that the UK can influence the value of the green pound it can influence its terms of trade. Thus ... it is difficult to see why the UK should pay a higher price than is necessary for its food imports providing that its partners are willing to acquiesce to such a policy."

It is clear that even where the long run aim of
integration is expressed, judging the agrimonetary system positively because it allows increased national autonomy can too easily appear as national interest. To avoid this appearance of national interest, those defending the agrimonetary system because of the national flexibility it allows, often support their argument with an account of the welfare effects of the system.

Judgement of the Agrimonetary System According to its Welfare Effects

The welfare effects of the agrimonetary system are discussed in the three articles cited above, as well as those by P.M. Schmitz, the Cambridge Economic Policy Group, and S. Dickenson and J. Wildgoose. The most complete account of the price and welfare effects is that of P.M. Schmitz, and this will serve as a basis for the explanation here.

With the exception of S. Dickenson and J. Wildgoose, whose contribution will be discussed below, all these authors were concerned not only with the impact of the agrimonetary system on actual price levels, but also on the terms of trade between the EEC and the rest of the world.
actual level of ESC agricultural prices, the green exchange rates will alter the level of ESC protection, and this will have implications for the allocation of agricultural production and consumption between the ESC and the rest of the world. Because the agricultural production and consumption of the ESC is large relative to that of the rest of the world, a shift in the ESC price level is likely to alter world prices, with for instance lower ESC prices inducing higher world ones.

P. M. Schmitz uses a simplified geometrical model to assess these effects of the green exchange rate system on the level of ESC prices and protection. Only two members of the ESC are considered as shown in Diagram 3-1. The 'domestic' market is of a country which is a net importer with a positive MCA. The 'member country market' relates to a net exporter with a negative MCA.

P* represents the world price adjusted on the assumption that CAP prices were moved to world levels and there was no longer any ESC protection. P^C is the common ESC price level and the price on the domestic market exceeds P^C by the amount of the positive MCA, while the price on the partner member country is below P^C by the negative MCA^P.

With MCA's the domestic market imports AB, of which N'O' (=EF) comes from the partner, and W'N (=DE) comes from the world market. Net consumer and producer welfare losses for the domestic market are equivalent to triangles ADC and BFG, and for the partner country they are N'R'S and Q'TT'.
Diagram 3-2

The Geometric Model of P.M. Schmitz which illustrates the welfare effects of the Agrimonetary System.
The import levy on third country trade is INo. Compared to a situation without either MCA's or import levies on third country trade, there is a terms of trade benefit of DEKH.

If MCA's are eliminated, both countries will have prices at $P^c$. In the specific case shown in Diagram 3-1, this entails that the import requirements of the domestic market increase to $A'B'$, while the export supply from the member country market increases to $MQ$, and the supply from the world market falls from $VW$ to $XY$.

Without MCA's the consumer and producer losses for the domestic market shrink to $A'CD$ and $B'FG$, while those of the partner country rise to $MRS$ and $CTU$. This is an example of the more general phenomenon in that where harmonisation of EEC prices causes a country to raise its prices, that country will probably suffer increased welfare losses through misallocation of resources, while those losses will be reduced for a country cutting its prices.

The fall in export supply from the world market shown in Diagram 3-1 represents the quantity component of the terms of trade effect. The quantity component develops differently from the price component. In the specific case shown in Diagram 3-1, the elimination of MCA's causes actual world prices to fall and the gap between actual and adjusted world prices increases from $P^wP^w_0$ to $P^wP^w_0^*$. In this particular case the quantity component of the terms of trade effect outweighs the decrease in world prices, so the elimination of MCA's will reduce the terms of trade gain.
Although in this case eliminating MCA's led to a terms of trade loss, this is not always so. Abolition of MCA's may either increase or decrease the level of actual average CAP prices, protection and self-sufficiency so the net result may either be a terms of trade gain or loss for the ESC as a whole. What actually occurs, assuming demand and supply functions unaltered, will depend on what the level of prices and MCA's are in the ESC.

Similarly for individual member countries, the terms of trade effect of MCA's depends on the impact MCA's have on the actual price levels. For instance a terms of trade loss is likely to result if the MCA raises prices in an exporting country or lowers prices in an importing country. A terms of trade gain will occur if the MCA raises prices above the equilibrium level of an importing country and below equilibrium in an exporting country.

Examples in the literature of Judging the Agricultural System According to its Welfare Effects

F.W. Schmitz uses the model described above to empirically estimate the allocation and terms of trade effects of the agrimonetary system and concludes that the elimination of MCA's and the harmonisation of agricultural prices to the 'common' level should be rejected from an allocation (or welfare cost) point of view. However, as will be shown later in this chapter, empirical estimation of this type
encounters considerable problems.

C.Ritson and S.Tanjermann use a geometric model very similar to that of P.M. Schmitz to illustrate the welfare effects of the agrimonetary system, although using the slightly different format of export supply and import demand curves. The earlier article of these authors with two others also approves of the agrimonetary system because it gives rise to positive welfare effects, by keeping the actual average level of EEC prices below what it would be in the absence of the system. This view is evident in the following (3) quotations taken from the article by T.Heidhues et al.:

"The efficiency of such a system (i.e., the CAP) is thus related to the level of protection given to agricultural products of domestic origin..."

"A rough estimate suggests that the level of common prices implied by the abandonment of current [1972] MCA's would be some 11% above that which would leave aggregate self-sufficiency in the major CAP products for the Community unchanged. This higher price level would, on reasonable assumptions about consumer price responsiveness raise the overall self-sufficiency level in these products well above 100 and possibly as high as 107%.

"... any worsening of the situation by imposing extra costs on the Community in the name of price harmonisation (by eliminating MCA's) should be avoided."

The concept of welfare effect used in these articles takes into account the terms of trade effects which may arise because the agrimonetary system alters the level
of EEC prices and protection, and hence of world prices. This concern for the effect on world prices and the allocation of resources between the EEC and the rest of the world may explain why the British, with a long tradition of agriculture orientated towards world rather than EEC conditions figure prominently among those judging the agrimonetary system according to its welfare effects.

One such example is A. Swinbank, who defends his recommendation that Britain should use the agrimonetary system to keep agricultural prices down, saying:

"The costs imposed on our partners are not as high as is sometimes maintained, provided the British price level is not less than the world price level it is better for the other 8 members to have us 'in' rather than 'out' ."

A slightly different approach is that of the Cambridge Economic Policy Group (10) and of P. Blancus (11) who aim to estimate the welfare effects of common agricultural prices by comparing the actual situation with the hypothetical situation of world prices. Both studies take as a reference system actual world prices and make no allowance for the effect of a hypothetical change in the protection level of one or all EEC states on the level of world prices. For the Cambridge Economic Policy Group this is less problematic as the welfare effects are only considered for a single country, while the P. Blancus study extends to seven of the EEC member states (excluding Luxembourg and Ireland).
P. Blancus leaves the effects of the agrimonetary system out of his analysis but the Cambridge Economic Policy Group provides a rough estimate of the welfare effect of MCA's on the British economy, but the results should be treated cautiously, given the difficulties of this type of analysis which are considered later in this chapter.

After 1979

Up until 1979 an assessment of the welfare effects of the agrimonetary system could be used in defence of the system. Since 1979 however, as Table 1 of Chapter 2 indicates negative MCA's have shrunk, if not disappeared, while positive MCA's have emerged (as in the case of Britain) or remained virtually undiminished. As a result the net effect of green exchange rates has been to raise actual average prices for ESC agricultural prices since 1979; so worsening the allocation of agricultural resources between the ESC and the rest of the world.

Not surprisingly then favourable judgement of the agrimonetary system on the basis of its welfare effects has assumed a somewhat different form since 1979. This is evident in the S. Dickenson and J. Wildgoose articles. These authors both work for the British Ministry of Agriculture, Fisheries and Food (M.A.F.F.) and from their studies it appears that they were required to produce a model defending what
was already decided Government policy, namely to use the green exchange rate system to raise agricultural prices in Britain. The studies continue the tradition of using partial equilibrium analysis to assess the effects of a green pound devaluation on the British economy (since when they were writing the UK MCA was still negative). However the form of partial equilibrium analysis used was very different from that which was usually adopted before 1979, as no account was taken of terms of trade effects and indeed no mention is made of world markets, which is very unusual for British agricultural economists.

Empirical application of the model also runs into considerable difficulties largely because of the deficiencies of partial equilibrium analysis. However this is a problem encountered by all attempts at empirical estimation of the price and welfare effects of green exchange rates and so will not be discussed in some detail.

The Defects of Partial Equilibrium Analysis

Though partial equilibrium analysis has considerable value as an explanatory device, it runs into enormous difficulties when used to derive empirical estimates. Various of the authors mentioned above used partial equilibrium analysis to assess the welfare effects of green exchange rates, including S. Dickenson and
These authors were clearly aware of the problems of using partial equilibrium analysis in this way and even made some attempts to overcome these problems, though without much success. An idea of the scale of the difficulties is given by E. Leamer and R. Stern (13) who say that the results of partial equilibrium analysis:

"...do at least seem to enjoy a slight preference over pure guesswork."

Major problems arise from the 'partial' nature of the analysis. Partial equilibrium analysis involves assessing the effects of a policy such as green exchange rates on a single market or series of markets. The underlying assumption is that the price and quantity responses in this single market (or series of markets) will have repercussions for other markets that are so small that they can be assumed zero and ignored.

The effects of the agrimonetary system on the level of prices and protection of EEC agricultural products will be determined to some extent by the interrelationship between the market for MCA goods and the rest of the economy. The problem is how to take account of all the more important interrelationships and partial equilibrium analysis does not offer any guarantee that this will be done in a systematic or
comprehensive way. As a result the choice of which interrelationships to include, and which not to consider becomes extremely haphazard and arbitrary, varying according to author and so further undermining confidence in this type of analysis. This can be illustrated by examples from the literature.

For instance P.M. Schnitz tries to estimate the impact of green exchange rates on the balance of payments but assumes that they will not alter the structure of trade. (14) Similarly in calculating the impact on consumer price indices he makes no allowance for the income and substitution effects that NCA's may induce.

S. Dickenson and J. Wildgoose indicate these problems then they refer to their own study as being:

"... only partial equilibrium analysis. It does not take account of the broader effects on the economy such as the movement in the exchange rate which might result from a balance of payments improvement, the addition of inflationary pressures as a result of price increases, the monetary implications of tax revenue or the ultimate effect of all these on international competitiveness."

They do not mention what is one of the most important omissions in all these studies, namely the possible response in Government policy. This is particularly striking in the case of S. Dickenson and J. Wildgoose, where it is assumed that the higher prices caused by the green pound devaluation will induce no Government reaction. This assumption seems highly
unrealistic as an example illustrates. Between the summer of 1979 and December 1980 the value of the green pound rose by over 40%, thereby inducing an increase in the overall retail price index of possibly as much as 5 - 6%. (15)

Given the importance of the anti-inflationary objective to the Conservative Government, such an increase in prices is likely to have implications for Government (and particularly monetary) policy and the UK economy as a whole.

A second major defect of partial equilibrium analysis is that it is a form of comparative statics so cannot accommodate dynamic effects, relating to the timing of responses to MCA's. On the supply side MCA's are likely to alter level of production of the MCA good itself, of its inputs, and of competing products. The size of these reactions will depend on the time path of the initial and secondary price and volume effects of MCA's. On the demand side MCA's alter consumer spending, relative prices and indirect taxes, thereby altering real disposable income which in turn will alter the volume and pattern of spending, and possibly also government policy. Once again the timing of these responses is likely to be important in deciding the scale of the MCA effect.

By way of defence for comparative statics however, as S. Dickenson and J. Wildgoose point out, at present there is insufficient knowledge about time lags in responses to MCA's to build a dynamic model of MCA effects.

Further problems arise from other of the simplifying
Assumption is required for partial equilibrium analysis. For instance it is assumed that the MCA system operates perfectly, but this is far from being the case as will be shown in Chapter 6. In addition analysis tends to be aggregate and cannot take account of the frequent MCA changes over time and by product.

Partial equilibrium analysis also requires competitive conditions to ensure that producers are on the transformation curve and while this assumption often holds better for many agricultural markets than for most non-agricultural markets, it is rare even in the case of agriculture that all the requirements for perfect competition are fulfilled. In particular the requirements that governments only interfere at the border and that factors of production are perfectly mobile within a country and perfectly immobile between countries are unlikely to be met for most EEC agricultural markets.

As a result, although partial equilibrium analysis may be more acceptable and yield better results for agricultural than for non-agricultural sectors, even in the case of agriculture certain problems remain. The inevitable question is therefore how the analysis could be improved, or what alternative methodology could be used to assess the welfare effects of the agrimonetary
Possible Improvements or Alternatives to Partial Equilibrium Analysis.

i) Disaggregate Analysis

One alternative would be to carry out partial equilibrium analysis in an extremely disaggregated way, so the effects of MCA's could be estimated for individual product groups. This would enable greater account to be taken of the variations in MCA's and of the different nature of the markets for each product group.

Studies of this type using a sector by sector approach have been carried out by E. Ryll (16) and T. Seegers (17). E. Ryll attempts to show the effect of MCA's on the pigmeat price in the FRG between 1970 and 1973. T. Seegers tries to quantify the impact of MCA's on prices, output, production costs and gross margins (18) of German farmers producing barley, pigs, beef and milk. In both studies cross price elasticities are used to calculate the effect of MCA's on the cost of inputs to that sector, and on other agricultural goods which compete for markets and inputs with the MCA goods in the sector being analysed.

Applied to agriculture this type of approach often yields acceptable results, though it involves certain problems. In particular, disaggregation means that a whole new series of interrelations must be considered on the product and input markets. Both E. Ryll and T. Seegers use cross price
elasticiies to assess these interrelations but the claim by E. Leamer and R. Stern (19) that elasticiies are "in general merely guesses" is even more true of cross price elasticiies.

Further difficulties arise for this type of approach as used by E. Ryll and T. Seegers since it is difficult to allow for the timing of responses and the ceteris paribus clause concerning price and quantity conditions in other countries is unlikely to be fulfilled. There may also be difficulties because the parameters are not independent and there may be co-linearity among exogenous variables. In addition assessment of demand is based on producer prices when it should be based on purchase prices so the assumption of constant margins is required and this may be open to question. Finally the results of this type of disaggregated analysis are, inevitably, for individual MCA product groups. Though these results may be interesting per se, there is no indication of how they could be generalised to assess the overall effect on the economy should this be required.

ii) General Equilibrium Approaches
a) Including MCA effects in a macroeconomic model of the economy

Given the problems of partial equilibrium analysis, an alternative might be to assess the effects of the agricultural system in a general equilibrium framework. One way of doing
this would be to build MCA effects into a macroeconomic model of the economy as has been done by the Cambridge Economic Policy Review Group, or at Bologna. MCA effects could then be estimated by comparing the results of a computer run based on actual agricultural prices, with the results of a run based on agricultural prices adjusted for the hypothetical elimination of MCA's.

However problems also arise for this type of approach. In particular, because there is a trade-off between MCA and price policy, it is extremely difficult to assess what agricultural prices would be in the absence of MCA's. Secondly, MCA effects will be relatively small with respect to the overall economy so that after allowing for the necessary margin of error it is doubtful how much accuracy can be attributed to the results. In addition adequate allowance cannot be made for the frequent variations of MCA's over time or by product or for the different structures of various markets for MCA goods. Difficulties also arise from the non-availability of statistics, since analysis of this type requires estimates of total MCA payments by product for each country considered, and apparently neither the EEC Commission, nor the relevant national authorities possess such data. Finally in order to take full account of the impact of green exchange rates on the level of EEC protection and world prices, this approach would have to be extended to all EEC countries with MCA's or to a model of the EEC as a whole. Given these
problems and the relatively small scale of MCA's at present, an approach of this type has not been attempted here.

**ii/b Differences in the marginal product of factors as an indication of the allocative inefficiencies arising from MCA's**

An alternative approach to measure the allocative effects of the agrimoney system might be that which has been used by J. Whalley and J. Thornton to estimate the static efficiency losses for Soviet industry. This involves first analysing actual quantity allocations and commodity and factor prices to estimate to what extent the marginal product of factors in different uses is not equalised. These results are then used to derive a simulation of the economy in which the marginal product of factors is equalised and this serves as an indication of the degree of inefficiency in the actual allocation.

The version of the model used by J. Thornton is relatively simple, relying on Cobb-Douglas-type production functions and on data for components of industry to estimate the differences in charges by sector. Allocational inefficiencies are then estimated by assessing the behaviour of the model in the absence of differential charges.

J. Whalley replaces the Cobb-Douglas by constant elasticity of substitution production functions and suggests that further refinement might be possible by adding input-output matrices. He also argues that prices are determined by demand
as well as production functions, so he introduces utility functions and the concept of equilibrium states, each of which is characterised by a set of equilibrium prices which equate demand with supply for all commodities.

J. Whalley then requires his parameters to be such that the situation of industry with differential charges can be reproduced as an equilibrium state. The differential charges are then removed and a new equilibrium state is then estimated. A comparison of the two equilibrium states provides an indication of allocative efficiency.

Applying this model to the EEC agrimoney system would first involve estimating the allocation effects of the CAP as a whole and then seeing how these effects were altered for MCA's. For the many EEC agricultural products which are in surplus, prices are more determined by the annually fixed level than by demand, so it would not be necessary to introduce the more complex format including utility functions, at least while analysing these products.

Problems remain in that the analysis is static, so again no account is taken of dynamic effects. In addition, in order to use production functions estimates of agricultural wages are necessary, and the statistics are at times extremely open to question. Moreover explicit account is not taken of the interrelations between the product markets of different agricultural goods and between factor and product markets.
Nonetheless this type of approach does seem a promising alternative to partial equilibrium analysis for assessing the allocation effects of the agrimonetary system and an interesting direction for further research would be to apply the approach in this way.

Conclusions

A major problem in judging the agrimonetary system solely on the basis of its welfare effects and the flexibility it allows to agricultural policy is that some of the most important effects of the agrimonetary system such as its impact on trade and the EEC Budget are ignored. The discussion of trade and budgetary effects in Chapters 6 and 7 will illustrate that the price of using the agrimonetary system to allow greater flexibility to national agricultural policy is too high.

It has been shown that estimation of the welfare effects of the agrimonetary system involves certain problems. As a result positive judgement of the system on the basis of these welfare effects, and the flexibility it allows to agricultural policy is far from being decisive.
Footnotes to Chapter 3

(1) T. Keidrick, T. Josling, C. Ritsen, S. Tangermann (77) Common Prices and Europe's Farm Policy, Trade Policy Research Centre
(3) A. Swinhoe (78) The British Interest and the Green Pound Centre for Agricultural Strategy Paper 6, Reading
(4) The 'national interest', that is the differing national needs and conditions which dictate the differing attitudes of EEC member states towards MCA's are discussed more fully in Chapter 6.
(5) P. M. Schnitz (79) EC Price Harmonisation: a Macroeconomic Approach, European Review of Agricultural Economics, 6/79
(6) T. Heidnies et al., ibid. Footnote (1)
(10) ibid. Footnote (6)
(12) ibid. Footnote (7)
(13) E. S. Leamer and R. M. Stern (70) Quantitative International Economics, Aldine Publishing Co., Chicago
(14) ibid. Footnote (5)
(15) The estimated link between the prices of MCA goods and the overall retail price index is taken from S. Dickenson and J. Wildgoose (ibid. Footnote (7)).
(17) T. Seegers (77) Wettbewerbswirkungen des Grenzausgleichs, Agrarwirtschaft 11
(18) The concept of gross margins will be defined in Chapter 4
(19) ibid. Footnote (13)
Chapter 4

The Objective of Cushioning the Sudden Price Changes after an Exchange Rate Alteration which Would Otherwise Disrupt the Market Situation of Farmers

In Chapter 1 a major objective of the agrimonetary system was stated as being to cushion the sudden price changes following an exchange rate change which would otherwise disrupt the agricultural sector in that country. This Chapter will explain in more detail how those price changes may disrupt the agricultural sector, and will describe possible judgements as to how far MCA's are successful in preventing this from occurring. Choice between these judgements is postponed until Chapter 5 when empirical research is carried out concerning how the market situation of farmers may be altered by exchange rate changes both with and without MCA's.

Definitions

As explained in Chapter 1, the Treaty of Rome sets out certain objectives for EEC agriculture in Article 39, and considers three operating principles: common prices, Community financing and Community preference, as the best means of achieving these objectives. The situation of EEC agriculture is here defined to depend on the extent to which those objectives are realised. If all the objectives
could be achieved then the agricultural situation in the EEC would be optimised, but this is impossible in practice, especially as certain of the objectives conflict (as will be shown below).

The impact of agricultural price changes following an exchange rate alteration will be far greater for farmers than for individual consumers. When considering how such price changes may disrupt the agricultural sector, the main emphasis will therefore be on farmers. Of the objectives in Article 39 of the Treaty of Rome, two in particular are directly concerned with farmers: the objective of optimal allocation of agricultural resources, and that of adequate incomes for farmers. Assessing how farmers will be affected by the price changes following an exchange rate alteration therefore entails seeing how far those price changes influence the extent to which those two objectives are or can be realised.

In order to realise the objective of adequate incomes for farmers, it is first necessary to decide what constitutes an adequate income. Similarly, in practice, the allocation of resources cannot be optimal but merely satisfactory, and a definition is required of what a satisfactory allocation entails. However, an a priori answer to both these problems is impossible, since what constitutes an adequate income, or satisfactory allocation will vary with time and place. What is clear is that the two objectives
may conflict so that realisation of both requires a compromise between the two, but again the exact form of that compromise will differ according to time and place.

A change in agricultural prices following an exchange rate modification will alter the compromise between the adequate income and allocation objectives. MCA's are therefore said to be necessary to offset those price changes and preserve the compromise between the two objectives.

The success of the agrimonetary system in meeting this aim will depend on its impact on the compromise between the two objectives, so some indicator of how far each of these has been achieved is required.

In practice the allocation of agricultural resources is determined by the market situation of farmers, which in turn depends on such factors as: output prices, input prices, the quantity of output, input structure, the share of inputs in output, productivity, the prices of products (other than inputs) which are consumed by the farmer, and his pattern of consumption.

These are the same factors that decide a farmer's level of income, so the market situation of farmers provides an indicator of how far both the allocation and adequate income objectives are being achieved.

It should be noted that both the allocation of resources and the decision that the farmer's income is adequate will depend on the market situation of the
farmer relative to that of farmers of all types, and the non-farm sector in that country and in other EEC states. The measure of market situation is therefore less important per se than as a means of making comparisons.

In using the market situation of farmers as an indicator of how far the two objectives are realised, ideally all of the factors listed above as influencing market situation should be taken into account. In practice this proves too difficult, and the measures of market situation actually used differ as to how many and which of these factors are considered. In the literature on green exchange rates four such measures in particular are used: output prices, the agricultural terms of trade, real sectoral income and gross margins. Each of these will now be discussed in detail, showing their relative strengths and weaknesses. This is necessary because the affect of MCA's on the compromise between the income and allocation objectives depends on the impact on the market situation of farmers, and this will vary with the measure of market situation used. The choice of measure may therefore influence the judgement of how far the agrimonetary system is successful in meeting its aim.

Of the measures of market situation used in the literature on green exchange rates, only one, gross margins, takes the volume of production into account. However, as will be shown, the use of gross margins involves certain
problems so it will not be adopted as a measure of market situation in the empirical analysis of Chapter 5. Output prices will also be rejected as too limited to serve as a measure of market situation. The remaining two measures, the agricultural terms of trade and real sectoral income consider only price effects and not volume effects. Nonetheless they may serve as indicators of the impact on farmers of the initial first-hand price changes following an exchange rate alteration with or without MCA's. Both measures will be used in the empirical analysis of Chapter 5 even though no account is taken of secondary price and volume effects. The justification of this omission is that at times even the first-hand price effects of exchange rate alterations with or without MCA's do not seem clearly understood, so an explanation of such effects seems necessary. Moreover as shown in Chapter 3, with present techniques a reliable and comprehensive account of the volume and secondary price effects of MCA's seems virtually impossible. While this does not justify leaving such effects out of consideration, it does at least provide a reason for doing so.

Measures of the Market Situation of Farmers

A) Output Prices

The market situation of farmers is sometimes identified
with output prices, and common (accordingly manipulated) EEC agricultural prices are seen as the best way of encouraging a satisfactory compromise between the income and allocation objectives. The common nature of these prices is said to aid the allocation of agricultural resources among different regions and countries, while sufficiently high prices safeguard the income objective. The green exchange rate system is therefore opposed as it enables agricultural prices to differ between EEC states so, it is claimed, preventing a satisfactory allocation of resources and undermining the compromise between objectives.

This view is however somewhat simplistic. Mobility of capital and labour in agriculture is notoriously low so common prices alone are likely to prove inadequate to induce a satisfactory allocation of agricultural resources. In addition common prices are an expensive and wasteful way of guaranteeing that farm incomes are high enough. If high common prices for agricultural goods are not the best way of achieving the compromise, then the fact that the green exchange rate system undermines these common prices no longer means that the system necessarily disrupts the compromise and fails to meet its aim.

B) The Agricultural Terms of Trade

Given the low mobility of factors of production in agriculture, a more robust measure of the market situation of farmers will have to take account of the differing
cost conditions of EEC farmers. This requirement is met by the agricultural terms of trade which consists in the ratio of input to output prices in agriculture. H. Ahrens (2) has defined the index of the agricultural terms of trade more precisely as:

\[ T_{it} = \frac{P_i^a}{P^b} \times 100 \]

where \( P_i^a \) = the index of agricultural producer prices
\( P^b \) = the index of prices of inputs to agriculture
\( i \) = country
\( t \) = year

A problem arises in that whereas above, the market situation of farmers was said to depend on at least eight factors (input prices, output prices, the share of inputs, the structure of inputs, the volume of production, productivity, prices of products contributing to the final consumption of the farmer and his consumption pattern) the agricultural terms of trade takes into account only the first two of these. If the agricultural terms of trade are to be used in comparisons of the market situation of farmers, then it is necessary to assume either that the other factors are unimportant, or that they are the same for the farmer and the economic agent (whether farmer or not) with whom market situation is being compared. This type of assumption is slightly more acceptable when comparison is being made within a single country, because the prices
of consumption goods will be the same for those being compared, and it is more likely that patterns of consumption will be similar.

Moreover as various authors have pointed out, the agricultural terms of trade do not indicate anything about the level or change in farmers' incomes because these are determined, not by the percentage development, but rather the absolute levels of costs and output prices and by the quantities produced.

Despite these shortcomings the agricultural terms of trade remains a useful measure of the market situation of farmers and will be used in the empirical analysis of Chapter 5.

c) Real Sectoral Income

In order to overcome some of the limitations of the agricultural terms of trade, real sectoral income was developed as an alternative measure of the market situation of farmers. Real sectoral income takes into account the input prices, output prices, share of inputs in production and the price of products in the farmer's final consumption. Real sectoral income is based on the ratio of prices paid (for inputs and final consumption) to prices received (for output) of the farmer. H. Ahrens provides an index of real sectoral income:

\[
2) \ Y_{it}^r = \frac{P_i^a - v_{it}^o \cdot P_i^b}{P_{it}} \cdot \frac{100}{1 - v_{it}^o}
\]
where \( Y^r \) = index of real sectoral income
\( v \) = share of inputs in final product
\( P \) = index of cost of living
\( t^0 \) = base year
and all the other symbols are as above.

\[ 3) \quad Y^r = \frac{P_{it}}{P_{it}^a} \times 100 \]

where all the symbols are as above.

However as T. Heidhues and S. Tangermann (6) have shown, it is not valid to assume that the prices of agricultural inputs move in line with general consumer prices; so the Ahrens formula is preferable.

Real sectoral income does not consider the structure of inputs, productivity, the quantity of output and the structure of final consumption of the farmer. Although these factors are extremely important for the market situation of farmers they prove extremely difficult to estimate reliably on a sufficiently aggregated basis.

It should also be noted that real sectoral income does not indicate changes in a farmer’s income as no account is taken of the quantity of production. Instead
it provides a measure of how the product and input prices of a farmer alter and so can serve as an indicator of the initial first-hand price effect of an exchange rate change with or without MCA's. Real sectoral income will therefore be used in the empirical analysis of the next Chapter.

D) Gross Margins

T. Seegers has developed an alternative measure of the market situation of farmers which he calls gross margins (Deckungsbeitrag) and defines as being the difference between market performance and average costs (proportionalem Spezialkosten) or:

4) \( DB = P \times X - I \)

where \( DB \) = gross margins

\( P \) = price of product per tonne

\( X \) = quantity of product

\( I \) = average costs.

A formula is also provided for the rate of change in gross margins:

5) \( \frac{\Delta DB}{DB} = \left( \frac{\Delta P}{P} + \frac{\Delta X}{X} + \frac{\Delta P}{P} \cdot \frac{\Delta X}{X} \right) \frac{PX}{DB} - \frac{\Delta K}{K} \cdot \frac{K}{DB} \)

This formula presents problems since the ordinary rules of calculus do not indicate how it was arrived at and no alternative explanation is provided. In addition the
empirical application of the formula involves difficulties.

In order to estimate gross margins or its change, an exemplary production method has to be selected for each product. This enables all of the factors listed above as influencing the market situation of farmers to be taken into account with the exception of the prices of products going to the final consumption of the farmer, and the structure of final consumption. Although these two factors are likely to differ considerably between countries this is far less the case within a single country. T. Seegers restricted his analysis to a comparison of farmers producing milk, barley, beef and pig meat in the FRG and so was able to produce quite good results. Applied to international comparisons this approach runs into considerable problems. This is not only because the exclusion of the above two factors is more serious, but also because substantial difficulties are likely to arise from the use of exemplary production methods in international comparisons. For this reason gross margins will not be used as a measure of the market situation of farmers in the analysis of Chapter 5.
Various Positions in the Literature on Green Exchange Rates
Regarding the Impact of Exchange Rate Changes and
Consequently of MCA's on the Market Situation of Farmers

1) The argument that exchange rate changes will leave the
market situation of farmers unchanged so that MCA's
will invariably alter the compromise between the income
and allocation objectives.

H. Rodemer (8) in particular has argued that higher
prices for inputs and final consumption of a farmer are
associated with depreciating currencies and lower prices
with appreciating currencies so that the change in output
price following an exchange rate alteration unaccompanied
by MCA's will exactly compensate a farmer for this
advantage or disadvantage and so leave the market situation
of farmers unchanged. This is known as the 'exact compensation'
argument, and its consequence is that MCA's are claimed to
be not only unnecessary but actually harmful because they
upset the adjustment process and alter the market situation
of farmers. MCA's in countries with depreciating currencies
worsen the market situation of farmers relative to farmers
in other countries, and to other economic sectors. At the same
time MCA's in appreciating currency countries entail a
strengthening in the relative market situation of farmers.
As a result the allocation objective is undermined and so
too the compromise between the two objectives.

The 'exact compensation' argument concerning exchange rate
changes requires at least three assumptions, namely: that the price of market regulation products, be they outputs or inputs to agriculture alter by the full percentage of the exchange rate change; that the law of one price holds for inputs to agriculture, and that purchasing power parity applies for products contributing to the final consumption of the farmer.

Applied to inputs to agriculture, the law of one price implies that movements in the price of those inputs must be the same in all countries after allowing for exchange rate changes. This is due to commodity arbitrage or even the threat of arbitrage in an integrated world market. As a result a depreciating currency is associated with prices for inputs to agriculture rising faster than elsewhere, while an appreciating currency is associated with prices rising less than elsewhere.

The assumption of purchasing power parity (PPP) can refer to either of the two main versions of the theory. The first version is the absolute form of the theory which asserts that exchange rates will tend to establish themselves at levels which equalise price levels between countries. Alternatively there is a relative version of the theory which asserts a tendency for the exchange rate of a particular country to rise when price rise more in that country and the opposite where prices fall or rise less than elsewhere.

If either version of purchasing power parity holds for
the price of commodities (other than inputs) consumed by the farmer, then following an exchange rate change it is claimed that the price of such commodities will alter by the same amount and in the same direction as the output prices of the farmer.

The validity of these three assumptions will be discussed in Chapter 5.

2) Setting MCA levels so as to leave the agricultural terms of trade or real sectoral income of farmers unchanged after an exchange rate alteration

A second view of how exchange rates and MCA's effect the market situation of farmers does not question the basic assumptions of the 'exact compensation' argument but does raise the problem of timing. While the market regulation prices of output or inputs to agriculture are assumed to alter immediately after an exchange rate change, movements in the prices of non-market regulation commodities which serve as inputs or for the final consumption of farmers are more likely to be gradual. This problem would be less serious if exchange rate changes were continuous, but at least for the full EMS members this is not the case. As presented here the discussion is neutral as to the chicken and the egg argument of whether causality runs from exchange rates to the price of non-market regulation products, vice versa, or some
combination of the two through a vicious-virtuous circle mechanism; though this debate has implications for the timing of price movements of non-market regulation products. In general however, in the literature on green exchange rates, causality is assumed to run from exchange rates to prices.

Given the different timing of the movement of different prices assumed to be associated with exchange rate changes, certain agricultural economists have argued that MCA's are justified to offset the temporary changes in the market situation of farmers which may follow exchange rate changes. However they argue that the level of MCA's should be fixed in such a way as to leave the market situation of farmers, and hence the compromise between the income and allocation objective unchanged by exchange rate alterations or by MCA's themselves.

There exist two versions of this proposal to reform the way in which MCA levels are set, corresponding to two of the measures of the market situation of farmers, namely: -

the agricultural terms of trade and real sectoral income.

The first version of this proposal entails setting the MCA level so as to leave the agricultural terms of trade of farmers in a particular country unchanged after an alteration of that country's exchange rate. The law of one price is said to hold so that only a temporary MCA, declining in level over time is assumed necessary to offset the temporary improvement in the agricultural terms of trade which follows a currency depreciation.
and the temporary worsenening that follows an appreciation. The problems for this version of the proposal which arise from the assumption of the law of one price for inputs to agriculture will be explained in Chapter 5, and other difficulties which it encounters will be pointed out in Chapter 10.

The second version of the reform proposal requires the MCA to be set at a level which leaves the real sectoral income of farmers unaltered after an exchange rate change. Once again it is assumed that only a temporary MCA declining in level over time will be necessary for this purpose, but in this case the assumption requires both the law of one price for inputs to agriculture and PFP for products comprising the final consumption of farmers. The problem of this version of the reform proposal will also be discussed in Chapters 5 and 10.

3) The doubt that MCA's can ever operate in such a way as to leave the market situation of farmers unaltered after an exchange rate change.

Various agricultural economists including T. Heidhues and S. Tangermann, M. Schöpe, M. Ahrens and H. J. Brock have criticised both the notion that an exchange rate change will exactly compensate farmers for an advantage or disadvantage in the market situation, and the proposal to fix MCA levels so as to leave the agricultural terms
of trade or real sectoral income unchanged. Instead MCA's are themselves assumed to alter the market situation of farmers, and hence the compromise between the allocation and adequate income objectives.

While this conclusion seems correct, in the literature on green exchange rates there does not seem to be a sufficiently systematic or comprehensive account of why MCA's necessarily undermine the compromise between the income and allocation objectives, so this will be attempted in the next Chapter.
Footnotes to Chapter 4

(1) The low mobility of factors of production in agriculture is mentioned by H.J. Block (75) Grenzsausgleich und EG Agrarmarkt: Ein Beitrag zur Kontroverse um die Wirkung des Grenzsausgleichs in der Agrarwirtschaft; T. Heidhues and S. Tangermann (72) Der Einfluss von wirtschaftlichen Wachstum, Inflation und Währungspolitik auf die Landwirtschaft unter EWG-Bedingungen; Agrarwirtschaft und M. Schöpe (76) Auswirkungen von Wechselkursänderungen und unterschiedlichen Preissteigerungsraten auf die Wettbewerbsposition einzelner EG-Länder in der Agrarwirtschaft; Studien zur Agrarwirtschaft 15, IFO, München.

(2) H. Ahrens (79) Auswirkung des Währungsausgleichs auf die Wettbewerbsposition der Landwirtschaft in der EG, eine Analyse am Beispiel Deutschland, Agrarwirtschaft 7/28/1.

(3) D. Manegold (76) Aspekte gemeinsamer Agrarpolitik; Agrarwirtschaft.

W. von Urff (74) Zur Funktion des Grenzsausgleichs bei Wechselkursänderungen um System der EWG Agrarmarktordnung; Agrarwirtschaft und M. Schöpe (ibid.) and H. Ahrens (ibid.) and M. Schöpe (ibid.).

(4) W. von Urff (ibid.)


(6) T. Heidhues and S. Tangermann (ibid.)
(7) T. Seegers (78) Wettbewerbswirkungen des Grenzausgleichs, Agrarwirtschaft 77/11

(8) H. Rodenm. ibid. Footnote (5)


(10) G. Jarchor (71) Die Problematik gemeinsamer Agrarpreise beim doppelten Stand der wirtschaftlichen und währungspolitischen Integration in der EEC, Agrarwirtschaft, W. von Urff ibid. Footnote (3) and S. Tarditi (78) Currency Interference in the CAP, the Monetary Compensatory Amounts, Economic Notes 7/:

(11) Proposed by G. Jarchor ibid.

(12) Proposed by S. Tarditi ibid. W. von Urff (ibid.) provides a formula for calculating MCA levels in this way.

(13) T. Heidroes and S. Tangenmann ibid.

(14) M. Schöpe ibid.

(15) H. Ahrens ibid.

(16) H. J. Stock ibid.
Chapter 5

The Impact of MCA's on the Market Situation of Farmers

This Chapter is divided into a theoretical and an empirical demonstration of why MCA's fail to offset the sudden price changes following an exchange rate alteration in a way which leaves the market situation of farmers unchanged.

The theoretical part of the Chapter aims to show that in practice the effect of a given exchange rate change on the market situation of farmers cannot be known a priori since it varies not only between countries, periods and types of farmer, but even between farmers producing the same product on the same scale, or a single farmer over time. As a result, if MCA's are to successfully offset these changes in market situation, they must be applied in a way which is sufficiently flexible to take account of these variations in impact, occurring even between individual farmers. The MCA system has not, and probably could not operate in this way as it would involve excessive costs and difficulties. In consequence it seems likely that MCA's have led to competitive distortions, and the results of an empirical study which suggest that this is the case will be presented in the second half of this Chapter.
Theoretical Analysis of How MCA's Alter the Market Situation of Farmers

The aim here is to show that however the market situation of farmers is measured, the impact of an exchange rate change and consequently of MCA's will vary with the case in question. The affect of an exchange rate change will be considered when market situation is measured by the agricultural terms of trade, by real sectoral income and when all of the determining factors are taken into account. For simplicity analysis is restricted to farmers whose output is entirely of market regulation products.

a) The impact on market situation as measured by the agricultural terms of trade

The impact of an exchange rate change on the agricultural terms of trade of a farmer will be a combination of the impact on the input and output prices of a farmer.

i) The effect of an exchange rate change on the output prices of market regulation products was shown in Chapter 2 given extremely restrictive assumptions. The assumptions include: - the perfect operation of the MCA system; market prices moving in parallel to market regulation prices; and the volume, structure, and performance of agricultural production, and prices of non-MCA products remaining unchanged after an exchange rate alteration. With these...
assumptions an appreciation (or revaluation) unaccompanied by MCA's reduces market regulation prices by slightly more than the appreciation (revaluation) percentage, while a depreciation (devaluation) raises such prices by slightly more than the depreciation (devaluation) percentage.

However the assumptions required for this relationship to hold are extremely restrictive and unlikely to apply in practice. As a result the impact of an exchange rate change on the output prices of farmers will be far less determinate than is sometimes supposed.

ii) This relationship between exchange rates and the output prices of market regulation products also applies where market regulation products are themselves inputs to agriculture. However the share of market regulation products in total inputs will vary even between farmers producing the same product on the same scale. If the affect of an exchange rate change on input prices is not to vary accordingly, the impact on market regulation and non-market regulation inputs must be identical. This entails that some relationship such as the law of one price holds between exchange rates and non-market regulation inputs.

It is frequently assumed that the law of one price does in fact hold for inputs to agriculture, as for instance by those who maintain that an exchange rate change will exactly compensate the competitive advantage or disadvantage of a farmer resulting from different rates of price increase or by those proposing to set MCA levels so as to leave the
agricultural terms of trade or real sectoral income of farmers unchanged. What is surprising is that there has been remarkably little empirical analysis on this question.

T. Heidhues and S. Tangemann have carried out a study of the link between exchange rates and farm input prices in each of the ESC six over the 1968-72 period, and discovered that the price increases of inputs to agriculture differed less between countries than did the general inflation rate measured either by the GDP deflator, or the cost of living index. H. J. Block obtained similar results for a study of intermediate inputs to agriculture in France and the FRG between 1969 and 1973. However it may be objected that the time period considered by both studies was too short.

Analysis will therefore be carried out here for the nine ESC countries (excluding Greece), using annual data for the 1970-78 period and monthly data from 1976 to September 1980. As national indices pose problems for international comparisons, Eurostat data was exclusively used. Eurostat takes 1970 as a base for most annual data on input prices and 1975 as a base for monthly data and gives no indication of how earlier information (where such exists) can be rendered consistent; so the time period of the study here was to some extent dictated.

ECU exchange rates of the nine ESC currencies have been used. Eurostat publishes two indices of the prices of inputs to agriculture: prices of goods and services currently consumed in agriculture, and prices of goods contributing
to agricultural investment. As these are thought to be "of a different character" Eurostat does not combine them into a single index, nor does it give the weight of each in total inputs. It has therefore been thought safer here to carry out analysis for each of the two indices separately. Relative indices have been constructed by dividing each of the indices for individual countries by the corresponding index for the EEC as a whole.

Diagrams 5-1 to 5-9 indicate how ECU exchange rates and the two relative indices for input prices move over the 1970-73 period in each of the then nine EEC countries.

Simple regression has also been carried out. In the literature on the agrimoney system causality is generally assumed to run from exchange rates to prices, the ECU exchange rate has been taken as the independent variable, and each of the two price indices in turn as the dependent variable in each of the nine EEC countries. Annual data has been used to obtain the results in Table 5-1. With France and Denmark proving exceptions, both the results of the regression and the graphical evidence in Diagrams 5-1 to 5-9 suggest that over the 1970-73 period ECU exchange rates and the two indices of input prices tended to move together in most of the EEC members.

Table 5-2 sets out the results of a similar regression carried out for the period from January 1976 to September 1980, using monthly data. There appears to be very little
Diagram 5-1

The FRG

Legend
- ECU exchange rate (ECU = national currency)
- Relative index of the prices of goods and services consumed in agriculture
- Relative index of prices of goods contributing to agricultural income

Diagram 5-2

France
### Table 5-1

Results of an Analysis Carried Out between the Relation of ECU Exchange Rates and the Price of Inputs to Agriculture for Annual Data, 1970–1978

Dependent variable = price of goods and services consumed in agriculture, P

Independent variable = ECU exchange rate, e. Standard error of in bracket

<table>
<thead>
<tr>
<th>Equation</th>
<th>$r^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG $P_{FrG}^C = -2.148 + 1.048 \cdot e_{FrG}$</td>
<td>0.968</td>
<td>213.36</td>
<td>1.434</td>
</tr>
<tr>
<td>FRG (0.072)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France $P_{Fr}^C = 73.683 + 0.242 \cdot e_{Fr}$</td>
<td>0.0169</td>
<td>0.12</td>
<td>1.613</td>
</tr>
<tr>
<td>France (0.6995)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy $P_{It}^C = 50.777 + 0.4558 \cdot e_{It}$</td>
<td>0.977</td>
<td>300.7</td>
<td>1.389</td>
</tr>
<tr>
<td>Italy (0.0263)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Nether $P_{nl}^C = -13.227 + 1.124 \cdot e_{nl}$</td>
<td>0.961</td>
<td>172.66</td>
<td>2.383</td>
</tr>
<tr>
<td>Nether (0.0856)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Belgium $P_{be}^C = -24.0169 + 1.20 \cdot e_{be}$</td>
<td>0.937</td>
<td>103.54</td>
<td>2.135</td>
</tr>
<tr>
<td>Belgium (118)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lux.$P_{L}^C = -2.292 + 1.032 \cdot e_{L}$</td>
<td>0.9443</td>
<td>118.754</td>
<td>1.836</td>
</tr>
<tr>
<td>Lux. (0.0947)</td>
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<tr>
<td>U.K. $P_{UK}^C = 23.0946 + 0.752 \cdot e_{UK}$</td>
<td>0.971</td>
<td>234.73</td>
<td>2.070</td>
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<tr>
<td>U.K. (0.049)</td>
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<tr>
<td>Ireland $P_{ire}^C = -5.584 + 1.063 \cdot e_{ire}$</td>
<td>0.954</td>
<td>145.112</td>
<td>2.586</td>
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<tr>
<td>Ireland (0.088)</td>
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<tr>
<td>Denmark $P_{D}^C = 88.353 + 0.135 \cdot e_{D}$</td>
<td>0.01899</td>
<td>0.136</td>
<td>0.759</td>
</tr>
<tr>
<td>Denmark (0.367)</td>
<td></td>
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</table>

Dependent variable = price of inputs contributing to agricultural investment, $P^I$. 

<table>
<thead>
<tr>
<th>Equation</th>
<th>$r^2$</th>
<th>F</th>
<th>DW</th>
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</thead>
<tbody>
<tr>
<td>FRG $P_{FrG}^I = -3.217 + 1.0698 \cdot e_{FrG}$</td>
<td>0.9496</td>
<td>131.774</td>
<td>0.966</td>
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<td>FRG (0.093)</td>
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<tr>
<td>France $P_{Fr}^I = 85.20 + 0.2748 \cdot e_{Fr}$</td>
<td>0.00466</td>
<td>0.034</td>
<td>0.257</td>
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<td>France (0.404)</td>
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### Table 5-1 cont'd.

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$R^2$</th>
<th>$F$</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>$P_{It} = 34.52 + 0.641 e_{It}$</td>
<td>0.984</td>
<td>439.136</td>
<td>1.537</td>
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<tr>
<td></td>
<td></td>
<td>(0.031)</td>
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<td></td>
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<tr>
<td>Neth.</td>
<td>$P_{NL} = 31.175 + 0.7238 e_{NL}$</td>
<td>0.915</td>
<td>75.323</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.083)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>$P_{Be} = 46.036 + 0.507 e_{Be}$</td>
<td>0.831</td>
<td>34.465</td>
<td>2.028</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.086)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lux.</td>
<td>$P_{L} = 56.195 + 0.463 e_{L}$</td>
<td>0.662</td>
<td>13.678</td>
<td>1.632</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.125)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>$P_{UK} = 31.884 + 0.675 e_{UK}$</td>
<td>0.979</td>
<td>330.478</td>
<td>1.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.037)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>$P_{Ire} = -9.436 + 1.075 e_{Ire}$</td>
<td>0.971</td>
<td>231.112</td>
<td>1.562</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.071)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>$P_{D} = 69.188 + 0.327 e_{D}$</td>
<td>0.232</td>
<td>2.114</td>
<td>0.553</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.225)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5-2

A Similar Regression Based on Monthly Data from 1976 to 1980

Dependent variable is $P^C$, the price of goods and services consumed in agriculture

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$R^2$</th>
<th>$F$</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG</td>
<td>$P_{FrG} = -20.80 + 1.264 e_{FrG}$</td>
<td>0.867</td>
<td>359.2</td>
<td>0.233</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.067)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>$P_{Fr} = 46.73 + 0.476 e_{Fr}$</td>
<td>0.252</td>
<td>18.5</td>
<td>0.787</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(.111)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>$P_{It} = 83.74 + 0.2447 e_{It}$</td>
<td>0.043</td>
<td>2.45</td>
<td>2.023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.156)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5-2 cont'd.

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$R^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neth.</td>
<td>$P_C^N = 95.57 + .03 e_N$</td>
<td>0.00</td>
<td>0.0002</td>
<td>2.098</td>
</tr>
<tr>
<td>Belg.</td>
<td>$P_C^B = -31.2 + 1.35 e_B$</td>
<td>0.49</td>
<td>53.53</td>
<td>0.102</td>
</tr>
<tr>
<td>Lux.</td>
<td>$P_C^L = -27.78 + 1.31 e_L$</td>
<td>0.57</td>
<td>71.87</td>
<td>0.110</td>
</tr>
<tr>
<td>UK</td>
<td>$P_C^UK = 85.45 + 0.2723 e_{UK}$</td>
<td>0.087</td>
<td>5.23</td>
<td>0.645</td>
</tr>
<tr>
<td>Ireland</td>
<td>$P_C^Ire = -26.095 + 1.155 e_{Ire}$</td>
<td>0.502</td>
<td>55.4</td>
<td>0.194</td>
</tr>
<tr>
<td>Denmark</td>
<td>$P_C^D = 105.91 - 0.133 e_D$</td>
<td>0.082</td>
<td>4.924</td>
<td>0.162</td>
</tr>
</tbody>
</table>

Dependent variable = the price of goods invested in agriculture $P^I$.

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$R^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>$P^I_{Fr} = -41.1 + 1.463 e_{Prg}$</td>
<td>0.792</td>
<td>209.15</td>
<td>0.103</td>
</tr>
<tr>
<td>France</td>
<td>$P^I_{Fr} = 129.57 - 0.31 e_{Pr}$</td>
<td>0.555</td>
<td>112.06</td>
<td>1.554</td>
</tr>
<tr>
<td>Italy</td>
<td>$P^I_{It} = -5.246 + 0.972 e_{It}$</td>
<td>0.923</td>
<td>658.32</td>
<td>0.477</td>
</tr>
<tr>
<td>Neth.</td>
<td>$P^I_N = 11.97 + 0.967 e_N$</td>
<td>0.445</td>
<td>44.09</td>
<td>0.421</td>
</tr>
<tr>
<td>Belgium</td>
<td>$P^I_B = -16.02 + 1.212 e_B$</td>
<td>0.508</td>
<td>56.74</td>
<td>0.160</td>
</tr>
</tbody>
</table>
correlation between movements in ECU exchange rates and farm input prices. The Tables of Annex 3 present the results of analysis carried out using monthly data and allowing for time lags of three months, six months, a year and two years. Even allowing for time lags of various lengths there seems to be little correlation between ECU exchange rates and farm input prices.

A problem arises in that whereas the Durbin Watson statistic for the regression on annual data was significant in most cases, that for the monthly data was generally too low (the relevant 1% significance point of \( d_1 \) being 1.36) suggesting positive autocorrelation. While this autocorrelation leaves the estimates of \( \alpha \) and \( \beta \) unbiased, it does imply that the sampling variances are biased, and at times may be seriously underestimated. As a result, the estimates

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>( R^2 )</th>
<th>F</th>
<th>D_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lux.</td>
<td>( P_L = -51.64 + 1.60 e_L )</td>
<td>0.630</td>
<td>93.57</td>
<td>0.148</td>
</tr>
<tr>
<td></td>
<td>(0.165)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>( P_{UK} = 95.5 + 0.213 e_{UK} )</td>
<td>0.024</td>
<td>1.37</td>
<td>0.022</td>
</tr>
<tr>
<td></td>
<td>(0.182)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>( P_{Ire} = -14.34 + 1.182 e_{Ire} )</td>
<td>0.633</td>
<td>94.92</td>
<td>0.265</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>( P_D = 116.68 - 0.232 e_D )</td>
<td>0.406</td>
<td>37.66</td>
<td>0.289</td>
</tr>
<tr>
<td></td>
<td>(0.037)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
of $R^2$ and the $F$ statistic presented in Table 5–2 and Annex 3 may be exaggerated which might suggest even less correlation between monthly exchange rates and input price indices than the tables indicate. Seasonal factors may provide a possible explanation for this autocorrelation, although it might be expected that the use of relative indices makes adequate allowance for such seasonal effects.

Bearing in mind these limitations, the results of the regression analysis carried out here indicate that the law of one price applied to inputs to agriculture applies fairly well over a longer period (9 years) but less well for a shorter period (two to four years). In agriculture it is the short run which is important. As a result, the impact of exchange rates on the price of inputs to agriculture and hence on the agricultural terms of trade cannot be known with any certainty for the time period of greatest importance, that is—the short run, so if MCA's are to leave the market situation of farmers unchanged after an exchange rate alteration, they must vary with the case in question, and practical difficulties render this virtually impossible.

b) The impact of an exchange rate change on real income

Real sectoral income defines the market situation of a farmer in terms of prices of outputs, inputs and the
final consumption of the farmer, and the share of inputs in output. The likely impact of exchange rates on output and input prices has already been discussed, so now the affect on prices of final consumption and the share of inputs will be considered.

i) The affect on prices of products (other than inputs) consumed by the farmer

For the likely affect of an exchange rate change on the prices of products comprising the final consumption of the farmer, once again there must be some relationship between exchange rates and the prices being considered, and in this case it will consist in some version of purchasing power parity (PPP).

PPP has frequently been assumed to hold for products comprising the final consumption of the farmer (as for instance in the exact compensation argument or the proposal to set MCA levels so as to leave the real sectoral income of farmers unchanged) without any empirical analysis to see whether this was in fact so. To overcome this omission, some of the theoretical and empirical studies of PPP will be briefly considered here.

For simplicity the price of products consumed by the farmer can be assumed to move with the general rate of inflation. As PPP is usually taken to refer to some measure of the general inflation rate, the question now becomes whether PPP has any validity over a time period sufficiently short to concern farmers.
Though this is not the place for a detailed discussion of PPP\(^{(9)}\), there are a number of reasons why it may not hold. In particular, various factors such as trade restrictions, transport costs, wage and price controls, capital flows, and changes in the real terms of trade may cause exchange rates to differ from what they should be according to either the absolute or relative version of PPP. Not surprisingly then, empirical studies yield rather ambiguous support for PPP. In the long run, despite its limitations, PPP retains a "residual validity" however, in that it more or less seems to work. Speaking of relative PPP, the ubiquitous H. Johnson says:\(^{(10)}\)

"As a matter of fact the exchange rates of the major countries do not depart very far (typically less than 20\%) from PPP."

Similarly, the 1975 Optica Report\(^{(11)}\) states:

"80\% of the variation in exchange rates appears to be attributable to inflation differentials."

The problem is that while PPP may yield fairly good results for the long run, this is not so for shorter periods. For instance, the 1975 Optica Report analysed PPP for the 1972-76 period and found that the currencies of Denmark, the Netherlands, Sweden and Switzerland were above PPP, while the Belgian franc, the lira and sterling were below it. Although such deviations could be ascribed to "short term disequilibria", with for example sterling undervalued from 1972-73 and subsequently overvalued; the short term seems to be of rather long duration. Indeed it is sometimes argued that a 20 or 50 year period is necessary for PPP to hold.
If this is so, short run correlation between exchange rates and prices of commodities consumed by the farmer is unlikely. As a result

ii) The impact on the share of inputs in output

When the share of inputs in output is also taken into account in analysing the effect of an exchange rate change on the market situation of farmers, it becomes even more difficult to say what the likely outcome will be.

The share of inputs in output will vary even between farmers producing the same product on the same scale in a country and differences are likely to be particularly great between countries. If the law of one price applied to inputs to agriculture, and PPP also held, then prices for inputs, output and final consumption of farmers would all alter by the same amount for a given currency change. In such a case the impact of the exchange rate change would be the same for farmers even if their share of input in output varied. However this appears not to be the case, so differing shares of inputs in output are likely to entail differing affects on real sectoral income. In addition, because the exchange rate has a varying affect on different types of prices, it may also induce a change in the share of inputs in output. It therefore seems likely that the impact of an exchange rate change on the real sectoral income of farmers will vary with the case in question.

c) The impact of an exchange rate on market situation as defined in a more complete sense

The more complete definition of the market situation of
A farmer differs from real sectoral income in taking into account also the structure of inputs, productivity, the volume of output and the structure of consumption of the farmer. If the exchange rate change is associated with price alterations which vary (even temporarily) among different commodities, then changes in each of these factors may result. As these factors may differ even between individual farmers, the affect of an exchange rate change is likely to vary accordingly. Already the impact of an exchange rate change on real sectoral income has been shown difficult to predict, so if four further variables are taken into account, the uncertainty as to how the market situation of a farmer is altered, is likely to increase correspondingly.

Conclusion

If the affect of an exchange rate change on the market situation of farmers varies to such an extent, then so too must the MCA to offset this affect. However, if the MCA is levied at the full percentage of the exchange rate change and in a semi-permanent way as was often the case, at least until 1979, the MCA itself is likely to alter the market situation of farmers, and hence the compromise between the income and allocation objectives. How the MCA will alter the market situation of farmers in any given case is an empirical question, so an empirical study of these affects will now be carried out.
An Empirical Study to Assess the Impact of MCA's on the Market Situation of Farmers

The aim here is to compare the actual market situation of farmers with what that market situation would have been in the absence of MCA's, though account is only taken of the initial, first-hand price effects. Two measures of market situation will be used, the agricultural terms of trade and real sectoral income.

The method of analysis employed has been developed by H.J. Block (13) and H. Ahrens (14) and W. von Urff (15) and although it was applied with some success by H.J. Block and H. Ahrens, its use has been surprisingly limited so seems justified here. In both cases where such analysis was carried out it was restricted to the FRG and France, and the time periods considered (1969/70 to 1973/4 for H.J. Block and 1970 - 1976 for H. Ahrens) are now somewhat dated. Although M. Schöpe (16) also analysed the actual agricultural terms of trade and real sectoral income for farmers of different types (beef, wheat, milk and pigmeat) over the 1970 - 1974 period for the then EEC six members, he did not consider how the actual situation would have been changed by the hypothetical non-existence of MCA's over that period.

Use of the approach here will therefore cover a longer time period (1970 to 1977 or 1978), more recent data, and the then nine EEC countries. Analysis is for all farmers together in each country, and for farmers producing the four commodity groups considered by M. Schöpe to assess
whether and to what extent the affect of MCA's on market situation varies for farmers of different types.

a) The Actual Agricultural Terms of Trade and Real Sectoral Income

The first step involves estimating the indices for the actual agricultural terms of trade and real sectoral income using the formulae presented in Chapter 4:

(1) \[ T = \frac{p^a_{it}}{p^b_{it}} \times 100 \]

(2) \[ \pi^r_{it} = \frac{p^a_{it} - \pi_{ite} \cdot p^b_{it}}{(1 - \pi_{ite}) \cdot p^b_{it}} \times 100 \]

where all the symbols are as before.

The results when all farmers in each country are considered together are set out in Tables 5-3 and 5-4. The data necessary to obtain these and other results of this study were often not available. As a result estimates had to be derived from such information as there was, and how this is done is explained in some detail in Annex 1. Annex 1 also contains tables of all the estimates which underlie the results presented in this Chapter.

The estimated agricultural terms of trade and real sectoral income for farmers producing different commodity groups are presented in Tables 5-5 and 5-6 and as can be seen, a much shorter period is considered than for all
Table 5-3

The Index of the Agricultural Terms of Trade for All Farmers in Each of the EEC Countries: Actual Situation

<table>
<thead>
<tr>
<th>Year</th>
<th>FRG</th>
<th>France</th>
<th>Italy</th>
<th>Neth.</th>
<th>Belg.</th>
<th>Lux.</th>
<th>UK</th>
<th>Ireland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1971</td>
<td>99.1</td>
<td>97.2</td>
<td>102.3</td>
<td>100.7</td>
<td>103.6</td>
<td>96.5</td>
<td>97.8</td>
<td>98.3</td>
<td>95.9</td>
</tr>
<tr>
<td>1972</td>
<td>104.5</td>
<td>105.6</td>
<td>107.2</td>
<td>105.6</td>
<td>109.8</td>
<td>103.5</td>
<td>98.11</td>
<td>07.5</td>
<td>102.5</td>
</tr>
<tr>
<td>1973</td>
<td>99.3</td>
<td>106.3</td>
<td>112.5</td>
<td>101.0</td>
<td>109.0</td>
<td>103.4</td>
<td>99.6</td>
<td>114.6</td>
<td>106.1</td>
</tr>
<tr>
<td>1974</td>
<td>99.8</td>
<td>91.0</td>
<td>104.2</td>
<td>88.3</td>
<td>96.7</td>
<td>90.5</td>
<td>88.1</td>
<td>83.9</td>
<td>89.8</td>
</tr>
<tr>
<td>1975</td>
<td>96.4</td>
<td>87.7</td>
<td>102.3</td>
<td>95.8</td>
<td>101.3</td>
<td>92.6</td>
<td>96.2</td>
<td>89.2</td>
<td>91.9</td>
</tr>
<tr>
<td>1976</td>
<td>100.6</td>
<td>93.6</td>
<td>99.3</td>
<td>97.4</td>
<td>102.9</td>
<td>91.5</td>
<td>104.1</td>
<td>96.1</td>
<td>96.7</td>
</tr>
<tr>
<td>1977</td>
<td>93.7</td>
<td>93.9</td>
<td>107.1</td>
<td>91.6</td>
<td>97.5</td>
<td>86.4</td>
<td>91.3</td>
<td>94.9</td>
<td>94.3</td>
</tr>
<tr>
<td>1978</td>
<td>90.9</td>
<td>90.8</td>
<td>108.0</td>
<td>91.2</td>
<td>95.5</td>
<td>87.2</td>
<td>97.3</td>
<td>99.4</td>
<td>97.1</td>
</tr>
</tbody>
</table>

Source: Eurostat for indices of producer prices and indices of the purchase prices of the means of agricultural production.

Table 5-4: The Index of Real Sectoral Income: Actual Situation

<table>
<thead>
<tr>
<th>Year</th>
<th>FRG</th>
<th>France</th>
<th>Italy</th>
<th>Neth.</th>
<th>Belg.</th>
<th>Lux.</th>
<th>UK</th>
<th>Ireland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1971</td>
<td>97.8</td>
<td>97.4</td>
<td>100.5</td>
<td>96.0</td>
<td>100.3</td>
<td>95.2</td>
<td>97.5</td>
<td>91.1</td>
<td>102.5</td>
</tr>
<tr>
<td>1972</td>
<td>99.1</td>
<td>103.8</td>
<td>106.8</td>
<td>100.4</td>
<td>110.5</td>
<td>95.4</td>
<td>110.3</td>
<td>102.5</td>
<td>125.5</td>
</tr>
<tr>
<td>1973</td>
<td>101.6</td>
<td>112.9</td>
<td>121.8</td>
<td>99.0</td>
<td>117.8</td>
<td>114.7</td>
<td>131.0</td>
<td>125.5</td>
<td>125.5</td>
</tr>
<tr>
<td>1974</td>
<td>81.8</td>
<td>95.4</td>
<td>118.4</td>
<td>73.3</td>
<td>96.5</td>
<td>89.7</td>
<td>93.2</td>
<td>104.9</td>
<td>125.5</td>
</tr>
<tr>
<td>1975</td>
<td>95.4</td>
<td>90.6</td>
<td>113.0</td>
<td>63.5</td>
<td>95.8</td>
<td>105.4</td>
<td>104.2</td>
<td>95.3</td>
<td>125.5</td>
</tr>
<tr>
<td>1976</td>
<td>106.9</td>
<td>98.1</td>
<td>114.7</td>
<td>87.8</td>
<td>102.4</td>
<td>130.6</td>
<td>117.8</td>
<td>104.1</td>
<td>95.3</td>
</tr>
<tr>
<td>1977</td>
<td>90.9</td>
<td>97.3</td>
<td>124.8</td>
<td>75.5</td>
<td>87.1</td>
<td>97.0</td>
<td>124.2</td>
<td>95.5</td>
<td>94.9</td>
</tr>
<tr>
<td>1978</td>
<td>82.4</td>
<td>89.4</td>
<td>113.7</td>
<td>69.5</td>
<td>78.5</td>
<td>85.3</td>
<td>131.8</td>
<td>94.9</td>
<td>94.9</td>
</tr>
</tbody>
</table>

(1) As earlier data was not available the 1973 estimate for the share of inputs in final production has been used in earlier years.

The sources are explained in the text.
| Table 5-5 |
| The Agricultural Terms of Trade for Individual Product Groups: Actual Situation |

1973 = 100

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>100</td>
<td>82.5</td>
<td>80.4</td>
<td>82.2</td>
<td>75.1</td>
</tr>
<tr>
<td>Italy</td>
<td>100</td>
<td>60.5</td>
<td>54.5</td>
<td>52.9</td>
<td>53.9</td>
</tr>
<tr>
<td>UX</td>
<td>100</td>
<td>65.2</td>
<td>56.0</td>
<td>57.5</td>
<td>55.1</td>
</tr>
<tr>
<td>FRG</td>
<td>100</td>
<td>95.5</td>
<td>98.1</td>
<td>104.4</td>
<td>96.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG</td>
<td>100</td>
<td>97.2</td>
<td>108.2</td>
<td>100.8</td>
<td>106.3</td>
</tr>
<tr>
<td>France</td>
<td>100</td>
<td>85.1</td>
<td>86.1</td>
<td>83.7</td>
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products taken together. This is because consistent, sufficiently aggregated indices of the producer prices of individual product groups were not available for the newer EEC members before 1973, or for all members after 1977.

As Denmark had no MCA over most of the period, it was not included in the study. Luxembourg was also excluded as there was insufficient information. In other cases the choice of which products were studied in which countries was determined mainly by the availability of statistics for 1973 in the EEC Commission publication, *The Farm Accounts Data Network (FADN)*, for reasons which Annex 1 makes clear. In the absence of 1973 information for certain product groups in the FRG 1975 data was used to enable comparison of the situation for all four types of farmer in a negative MCA country over this period: France, and a positive MCA country: the FRG.

b) The Hypothetical Agricultural Terms of Trade and Real Sectoral Income, Assuming that There Were No MCA's

In order to assess the MCA affect, the actual agricultural terms of trade and real sectoral income must be compared with what the situation would be without MCA's (though still with the CAP). The analysis here only takes into account the immediate, first-hand effect of eliminating
MCA's on the prices of market regulation products. Indirect or secondary price affects are not considered, and nor are quantity affects on production and consumption. In order to restrict analysis in this way certain assumptions are necessary and these will now be made explicit.

Intervention prices, producer prices, wholesale prices and retail prices for market regulation products are all assumed to move in parallel and this entails that whole sale and retail margins remain constant.

The elimination of MCA's is assumed to alter only the prices of market regulation products and processed products derived from those, in the country considered. Prices of non-market regulation products which are used as inputs, or compete with market regulation products for markets in that country, together with all prices abroad are assumed not to change.

The realism of these assumptions, and hence the validity of restricting analysis in this way will later be discussed, but first the analysis will be presented. In order to assess the agricultural terms of trade and real sectoral income in the absence of MCA's, it is necessary to estimate the affect of eliminating MCA's on the producer and input prices of farmers, and on the cost of living.

1) What the producer prices of farmers would be without MCA's.

To estimate what producer prices would be without
MCA's or all farmers together, a formula of Ahrens which has been modified to allow for negative MCA's is used:

\[(3) \ P^a_{it} = P^a_{it} \ (1 + mca_{it})s_{it} + (1 - s_{it}) \]

where

\[P^a_{it} = \text{hypothetical producer price index}\]
\[mca_{it} = \text{actual MCA percentage. Where the MCA is positive, it will be subtracted, and where it is negative, it will be added.}\]
\[s = \text{share of all agricultural products subject to MCA's by value of final production}\]
and all other symbols are as before.

A far simpler formula can be used in estimating the hypothetical producer prices, assuming that MCA's do not differ between product groups, namely:

\[(4) \ P^a_{it} = P^a_{it} \ (1 + mca_{it}) \]

with all symbols as before.

Through input price indices would be in the absence of MCA's

Both in the case of all farmers taken together and farmers of individual product groups, the hypothetical output prices can be derived using rather more precise versions of formulas taken from H.Ahrens(17):
(5) $P^{b\prime}_{it} = P^b_{it} \left( 1 + m\text{ca}_{it} \cdot b^c_{it} \right) + \left( 1 - b^c_{it} \right) $

(6) $b^c_{it} = k \left( (f^c_{it} - o^c_{it}) + g^c_{it} + m^c_{it} \right) $

Where

$P^{b\prime}_{it}$ = hypothetical input price assuming no MCA's
$b$ = share of inputs which may be liable to MCA's
$k$ = share of input price not determined by service costs
$= $ share of feedstuffs in total inputs
$o$ = share of oilcakes in all inputs
$g$ = share of seeds and plants in all inputs
$m$ = livestock for rearing and production as a share of all inputs

The remaining symbols are as above.

iii) What the cost of living indices would be in the absence of MCA's

The hypothetical cost of living indices are assumed the same when all farmers and when farmers of individual product groups are considered. Again formulae based on H. Ahrens are used:

(7) $P^{\prime}_{it} = P_{it} \left( 1 + m\text{ca}_{it} \right) \cdot c^c_{it} + \left( 1 - c^c_{it} \right) $

(8) $c^c_{it} = v^t_{it} \cdot n^t_{it} \cdot z^t_{it} $

where $v$ = share of food, tobacco and beverages in private consumption expenditure; $n$ = share of MCA products in $v$; $z$ = retail margin on food, tobacco and beverages and all other symbols as before.
The hypothetical indices derived for producer and input prices for all farmers together, and for farmers producing different commodity groups and for the hypothetical cost of living are set out in Annex 1. These indices are used to estimate that the agricultural terms of trade and real sectoral income would be in the absence of LCA's, and the results for all farmers taken together are in Table 5-7, while those for farmers of different types are in Tables 5-8 and 5-9.

Conclusions

In Diagrams la to 1q of Annex 2 the actual agricultural terms of trade and real sectoral income of farmers of all types taken together is compared with what the situation would have been without LCA's, and the same is done for farmers producing individual product groups in Diagrams 2a to 2q of Annex 1.

These diagrams indicate that the market situation according to both measures was more favourable than it would have been without LCA's in appreciating currency countries. This is true both when farmers are considered all together and according to different product groups. The opposite occurs in countries with depreciating currencies where LCA's seem to render the market situation of farmers less favourable than it would otherwise be.
## Table 5-7

### The Hypothetical Agricultural Terms of Trade Assuming that There Were No MCA's

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(1)Data for the share of inputs in agriculture was not available before 1973, so the 1973 percentage has been used for earlier years. Source explained in text.
### Table 5-8

**The Hypothetical Agricultural Terms of Trade for Individual Products**

**Assuming No MCA's**

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<td>133.9</td>
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</table>
### Table 5-9

Hypothetical Real Income for Individual Product Groups Assuming No MCA's

<table>
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<td><strong>Common wheat</strong></td>
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<td>63.0</td>
<td>46.1</td>
<td>57.8</td>
<td>58.5</td>
</tr>
<tr>
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<td>68.9</td>
<td>73.1</td>
<td>96.9</td>
<td>79.1</td>
</tr>
<tr>
<td><strong>Beef and veal</strong></td>
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<td></td>
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<td>France</td>
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<td><strong>Pig meat</strong></td>
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<td>57.8</td>
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<td>56.6</td>
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<tr>
<td>FRG</td>
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<td>11.7</td>
<td>22.5</td>
<td>64.2</td>
<td>31.6</td>
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<tr>
<td><strong>Milk</strong></td>
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<tr>
<td>FRG</td>
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<tr>
<td>France</td>
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<tr>
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<tr>
<td>Ireland</td>
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<td>164.2</td>
<td>156.8</td>
<td>125.3</td>
<td>117.5</td>
</tr>
</tbody>
</table>
In some cases it appears that the affect of MCA's has been strong enough to reverse the relative market situation of farmers between countries. This occurred for instance between the FRG and France for pigmeat for all years excluding 1975, and for wheat up until 1975, as shown in Diagrams 5-10 and 5-11.

The impact of MCA's does appear to have varied between products, with the market situation of pigmeat farmers being altered least as their share of market regulation inputs is greatest. It might be expected that the market situation of wheat farmers who have the lowest share of market regulation inputs is altered most, but in fact the greatest change is for dairy farmers. This is because the MCA affect is greater on producer prices than on input prices. The market regulation prices of skimmed milk powder increased more rapidly than those of the other products considered, and hence the impact of MCA's (which are levied as a percentage of market regulation prices) was greatest for the producer prices and market situation of milk farmers.

Although this analysis only considers the initial first hand price affect of MCA's, it does suggest that the market situation of farmers has been altered by the MCA system. Moreover there seems little justification on equity or any other grounds for these shifts in market situation caused by MCA's. Why for instance should farmers producing milk be favoured relative to those producing beef in an
Diagram 5.10: Comparison of the actual market situation of wheat farmers in France and the FRG with what their situation would be without MCA's.

The Agricultural Terms of Trade

FRG: Actual Situation
FRG: Hypothetical Situation of No MCA's
France: Hypothetical Situation
France: Actual Situation

Real Sectoral Income

FRG: Actual Situation
FRANCE: Hypothetical Situation of No MCA
FRANCE: Actual Situation
Diagram 5-11: Comparison of actual market situation of pigment farmers in France and the FRG with what their situation would be without MCA's.

The Agricultural Terms of Trade

Real Sectoral Income
appreciating country an disadvantaged relative to beef farmers in a depreciating country? What justifies Benelux and German farmers being favoured at the expense of their Italian counterparts? Despite its limitations, which will now be discussed, the analysis shows that the MCA system seems to alter the market situation of farmers in a way that suggests reform of the system is necessary.

Limitations of the Analysis and Ways in which They Might Be Overcome

As mentioned above, certain assumptions were made to restrict analysis to the direct price effects of MCA's and to exclude secondary price or volume effects. The realism of these assumptions must now be examined to see whether it is valid to restrict analysis in this way.

A major assumption was that producer prices would move in parallel with market regulation prices. As H. Ahrens points out, whether this occurs for a product depends on the relationship of equilibrium price to the price at which support buying of that product begins (which is usually the intervention price). If for example, the equilibrium and producer prices of a product lie above its intervention price, then a change in MCA level is unlikely to alter the producer price by an amount
proportional to the change in intervention price (where this applies) where this results.

S. Dickenson (19) has considered this question for Britain and concludes that while producer prices are likely to fully reflect a green pound alteration (and hence move parallel to intervention prices) for cereals, this is unlikely to be the case for beef, whose producer price was above intervention levels.

Although there is a tendency for the growing surpluses and self-sufficiency in the EEC to make producer and intervention prices approach, the ratios of market prices to intervention prices published in CCR/78/20 and CC/78/11 of the EEC Commission indicate that in many cases producer prices are above intervention levels, and hence that the assumption that the two price series move in parallel does not always hold.

To date there is insufficient empirical information about wholesale and retail margins in the food trade to make any assertions about the assumption that producer, wholesale and retail prices for agricultural products move in parallel (20).

Another important assumption is that the MCA will only affect the price of market regulation products in the country considered, and will have no other price or volume effects. This assumption is extremely unrealistic.
Changes in the price of a market regulation product are likely to alter the quantities of that product produced and consumed, and once quantity changes are allowed, secondary effects are also to be expected. In particular, a change in the price of a market regulation product is likely to induce a change in the demand for inputs necessary to produce that good, and this in turn may alter the price (and possibly structure) of inputs. The new input prices may affect the price of the market regulation product itself, and so a chain reaction is established. Another important secondary effect is that consumption of substitutes or goods competing with the market regulation product may be altered. The change in consumption may alter prices of these goods, so having repercussions for the consumption and price of the original market regulation product, and again setting a chain reaction in motion.

Nor does there seem any reason to suppose that these effects will be restricted to one country. It seems probable that at times a change in the price of a market regulation product will alter its price abroad.

However the exclusion of quantity and secondary price effects from the analysis is not based on any doubts about their existence, but rather on the immense difficulty in quantifying this type of effect, as is evident from the discussion in Chapter 3, and from two of the more successful attempts at such quantification, those of E.Ryll\(^\text{21}\) and T.Seegers\(^\text{22}\).
Both these authors restricted their analysis to the impact of MCA's on individual product groups in the FRG, with S. Ryll analysing the pigmeat market over the 1970-73 period, and T. Seegers - milk, pigmeat and beef in 1975. Both authors attempted to estimate quantity and secondary price effects, taking into account the impact of MCA's on inputs and the most important substitutes. They found that the direct price effect at times differs greatly from the final effect which also incorporates quantity and secondary price effects. These authors therefore criticise analyses of MCA effects which do not take account of the interdependencies between different input and product markets.

However as pointed out in Chapter 3, these authors run into difficulties because of the immense problems of assessing this kind of effect. Given the present state techniques, accurate analysis of volume and secondary price effects seems virtually impossible, so will not be attempted here.

Despite its limitations, the empirical study of this Chapter does at least confirm the theoretical part of the Chapter in the conviction that the MCA system fails to meet its objective of offsetting the impact of sudden price changes following an exchange rate alteration thereby leaving the market situation of farmers unchanged.
Footnotes to Chapter 5

(1) These assumptions and their validity are discussed in greater detail in the final section of this Chapter.

(2) H. Ahrens (79) Auswirkung des Währungsausgleichs auf die Wettbewerbsposition der Landwirtschaft in der EG, eine Analyse am Beispiel Deutschland, Agrarwirtschaft 79/28/1

(3) See Chapter 4 for an account of the 'exact compensation' argument.

(4) See Chapter 4 for an explanation of these proposals.

(5) T. Heidhues and S. Tangermann (72) Der Einfluss von wirtschaftlichen Wachstum, Inflation und Währungspolitik auf die Landwirtschaft unter EG-Bedingungen, Agrarwirtschaft

(6) H. J. Block (75) Grenzausgleich und EG-Agrarmarkt; Ein Beitrag zur Kontroverse um die Wirkung des Grenzausgleichs, Agrarwirtschaft

(7) See Chapter 4

(8) There is much discussion about which measure of the inflation rate it is best to use, (the consumer price index, the wholesale price index, export prices etc.) as is evident from L. H. Officer (76) The Purchasing Power Parity Theory of Exchange Rates, IMF Staff Papers, and the 1976 Optica Report, Inflation and Exchange Rates— Evidence and Policy Guidelines for the European Community, EC Commission, Brussels, Feb. 1977

(9) For a more detailed discussion see L. H. Officer (ibid.) and the bibliography he provides.

(10) H. Johnson (68) International Trade, I, Theory

(11) 1976 Optica Report (ibid)

(12) As shown by T. Heidhues and S. Tangermann (ibid)

(13) H. J. Block (ibid)

(14) H. Ahrens (ibid)
(15) W. von Urf (77) Zur Funktion des Grenzausgleichs bei
wechselkursänderungen im System der EWG Agrarmarkt-
ordnungen, Agrarwirtschaft 5

(16) M. Schöpe (76) Auswirkungen von Wechselkursänderungen
und unterschiedlichen Preissteigerungs raten auf die
Wettbewerbsposition einzelner EG-Länder im Agrar-
bereich; Studien zur Agrarwirtschaft, IPC München

(17) H. Ahrens (ibid.)

(18) H. Ahrens (ibid.)

(19) S. Dickenson (76) Effects of a Green Pound Devaluation,
Discussion Paper for a CBAS Workshop; 14-15 Feb., Wye
College, Kent.

(20) The Meat and Livestock Commission in Britain is at
present carrying out analysis of wholesale and retail
price margins, and study of this question has been made
by D. Manegold (76) Aspekte gemeinsamer Agrarpolitik,
Agrarwirtschaft. However despite these studies there
is still insufficient information about how margins
move when prices alter.

(21) B. Ryll (75) Währungsparitätänderungen und Grenzaus-
gleich: Konsequenzen für die Schweineproduzenten in
der BRD in Bezug auf ihr Preisniveau 1970-1973,
Agrarwirtschaft 5

(22) T. Seegers (77) Wettbewerbswirkungen des Grenzausgleichs,
Agrarwirtschaft 11.
Chapter 6

The Impact of the Green Exchange Rate System on Trade

Until as late as 1974 the EEC Commission denied that the MCA system had an adverse affect on agricultural trade, saying \(^{(1)}\):

"Effectivement le volume des échanges n'a pas été affecté jusqu'à présent par le système des montants compensatoires."

A series of studies, \(^{(2)}\) including two by the Commission itself, soon caused this verdict to be reversed, and there is now universal agreement that MCA's give rise to trade distortions in at least some cases. This Chapter will attempt to estimate the scale of some of these distortions, but will first explain how the MCA system may influence trade.

The overall impact of green exchange rates on trade is a combination of two types of effect, one of which arises even when the system is functioning perfectly, and the other which is caused by defects in the system. Each will now be discussed before considering how the two combine to produce the total trade impact.

The Impact on Trade even when the Green Exchange Rate System Operates Perfectly

As shown in Chapter 2 an MCA in a country whose currency is appreciating keeps prices for market regulation products higher than they would otherwise be (in terms of domestic currency) thereby encouraging the production,
and discouraging the consumption of MCA goods, and rather than being one-off the MCA effects may trigger secondary price and volume effects.

As the opposite occurs in a country with a devaluing or depreciating currency, there will be an incentive to change in the international allocation of resources, with a corresponding alteration in the pattern of trade flows. Though originally intended as a temporary adjustment mechanism, MCA's were used in a semi-permanent way at least up until 1979. In addition they enabled price differences of as much as 50% (in 1976) between EEC states, a price span which at times has been even greater than that between EEC countries before the CAP was established. As a result the implications of green exchange rates for intra-EEC trade are likely to be substantial.

Moreover, as shown in Chapter 3, green exchange rates may alter the level of EEC protection and hence influence trade flows between the EEC and the rest of the world.

Chapter 3 also indicates how various authors, including F. W. Schmitz (3), have tried to estimate the impact of MCA's on trade within the EEC and between the EEC and the rest of the world, using partial equilibrium analysis, and assuming that the MCA system functions perfectly. Partial equilibrium analysis is a traditional tool of the theory of protection, and this is just one of the many examples in which analysis of green exchange rates conforms to a textbook account of protectionism.

The arguments used to advocate protectionism are those used in favour of green exchange rates. It has sometimes been claimed that protectionism is necessary to cushion changes without
ultimately preventing reassertion of market forces. This was precisely the defence used to introduce MCA's in the first place, namely to cushion the adjustment of French farmers to higher food prices and of German farmers to lower agricultural prices, and this justification of MCA's has been used repeatedly ever since.

Alternatively, protectionism may be urged to offset uncertainties and economic fluctuations. Similarly with MCA's which are said to arise because monetary integration failed to keep pace with integration in the agricultural sector, so a 'temporary' mechanism was claimed necessary to insulate agriculture from external shocks arising from the monetary sector.

Protectionism has also been justified in order to meet the needs of a second-best or sub-optimal situation which exists in practice. So too with MCA's which have been defended as a second-best policy, since the CAP itself contravenes the rules of free trade, being based on annual fixing of prices.

According to textbook protectionism, all the arguments above in favour of protectionism are essentially short-term and often serve simply as a cover for underlying political motives which preserve protectionism long after it is economically 'justified'. Similarly with MCA's, whose introduction as a temporary mechanism was justified on economic grounds (to cushion French and German adjustment, to offset monetary fluctuations and so on). However as Chapter 9 on the political economy of MCA's will show, it is political factors which provide the real explanation of why MCA's have survived and have been transformed from a temporary to a semi-permanent system.
Trade Effects Arising through the Imperfect Functioning of the MCA System

There are numerous ways which the defects in the green exchange rate system may give rise to distortions in agricultural trade, and a list presenting some of the more important ways in which this occurs will now be presented.

A) Distortions may arise because MCA's do not compensate exactly for the exchange rate change because of:
   1) the 1% franchise on negative MCA's and the 1% franchise on positive MCA's
   2) the lag in calculating and applying the MCA. For the ECU system, as for the previous snake system, MCA's are calculated on the basis of the five days from Tuesday to Wednesday of the preceding week and applied the following Monday.
   3) Up until April 1979 the system was based on the snake and this entailed overemphasising the relative weakness of the depreciating currencies and underemphasising the strength of the Deutsch mark.
   4) Exporters are in a different position according to whether they face fixed or variable MCA's as the latter are more complex and subject to variation than the former.

B) Another shortcoming in the MCA system which gives rise to trade distortions is that the basis for calculating
the MCA may be unsuited to the product. In general MCA's are based on intervention prices, so that if market prices are higher or lower than intervention prices, the MCA may under- or over-compensate for exchange rate changes. (5)

Before the situation was to some extent resolved, the use of the intervention price was particularly unsuited to pigmeat for instance, where the annually agreed base price was used to ensure market stability and, intervention scarcely being used, the intervention price was a mere 85 - 92% of base price. The impact of this was, for example, to overcompensate Dutch and Danish exporters to Britain so that British producers constantly complained that they were being undercut. (6)

To simplify administration of the system, MCA's for processed goods were based on notional recipes. In the past the difference between notional and actual recipes created unfair advantages between countries, as was the case for the EEC biscuit industry, but these problems have largely been resolved by Reg.800/77 and Article 4/4 of 1372/81.

Finally the MCA system may be unsuited to the product because, as A. Stenbank points out (8):

"Clearly the shorter the list of MCA's the easier it will be for customs officials to classify products and to administer the system. But the corollary of this is that some products, particularly cheese and processed products will have MCA's not exactly suited to their composition."
This is an example of the basic dilemma of the MCA system: that trading flexibility and ease of administering the system are incompatible with total immediate and exact compensation of exchange rate changes.

c) As A. Swinbank points out, MCA effects may also arise from the costs and complexity of the system. This complexity is exacerbated by the frequent changes in MCA levels and differences in levels among products. As a result, much trade by smaller traders in particular, is discouraged by the MCA system, while larger firms often have to employ an MCA expert, with costs most likely being passed on to the consumer as higher prices.

d) The aim of the MCA system to fully offset the effect of currency fluctuations is incompatible with its aim to eliminate currency - commodity arbitrage, (as again A. Swinbank points out) since with adequate knowledge of the MCA system, producers can predict future changes in MCA levels and can advance or withhold supplies to markets accordingly.

The flaws in the MCA system also create an incentive for smuggling and fraud. For instance, the Eighth FEOGA Report (CGI/79/596) states that out of a total of 117 cases of fraud in connection with the CAP in 1973, 58 cases concerned MCA's. However, the reduced MCA levels in 1979 was reflected in fewer frauds, with only 18 MCA frauds being reported in the Ninth FEOGA Report.
One example of fraud is provided by A. Sauzin(10) who describes the famous carousels, saying:

"Pour le blé dur il n'y avait jusqu'au 25 novembre 1977 de MCA. Dans les pays à monnaie dépréciée le prélèvement n'était pas corrigé par le coefficient correspondant.

Le prélèvement exprimé en U.C. et transformé en monnaie nationale sur base du taux vert devenait avantageux et l'importation dans les dits pays pour reexportation vers les pays à monnaie appréciée s'est développée."

A further example is provided by the Ulster border situation, where particularly during the mid-70's livestock smuggling was stimulated by the huge difference between intervention prices in Eire and Ulster, because British green pound devaluations differed from those of the Irish Republic. According to the House of Lords Select Committee on the ESC:

"...the UK Government has consequently had to spend over £1 million a week through its Northern Ireland Meat Employment Subsidy Scheme in an effort to protect the Ulster meat processing industry from the effects of such smuggling."

An Empirical Analysis of Trade Distortions Arising from Defects in the MCA System

An interesting study of how some of these shortcomings in the MCA system (12) may give rise to trade distortions
is considered by M. Schöpe. (13) He considers the trade flows for four individual product groups: wheat, milk, beef and pigmeat between the six EEC members over the 1969-74 period. Allowing for transport costs and customs duties (14) M. Schöpe assesses how far MCA's on a particular product group cover the actual market price difference for that product group between countries. If for example, the MCA's more than cover the price difference (allowing for transport etc.) there will be overcompensation and though it is uncertain how the benefit arising from overcompensation will be divided between producers in the exporting country, consumers in the importing country and traders (if any), it is clear that there will be an incentive to greater exports. In contrast, if the MCA less than covers the price difference, there will be an disincentive to export.

M. Schöpe discovered that after allowing for transport etc., German milk prices were already below those of Italy (both expressed in lira) so that the impact of MCA's on the milk trade between the FRG and Italy was simply to further increase the German price advantage on the Italian market. A paper presented by M. Schöpe in Brussels during 1978 (15) shows that this condition continued at least until 1977. This provides some explanation of why only 12,500 tonnes or 12% of Italian milk and cream imports came from the FRG in 1969, while by 1976 this figure had risen to 873,000 tonnes or 85% of Italian imports. (16)

Similarly over the 1969-74 period, M. Schöpe found that MCA's increased the price advantage of French and German
beef on the Italian market. The MCA on hard wheat was found to offset market price differences and so not to induce trade distortions, with the sole exception of trade with Italy, the only country of the ESC 6 not to have a wheat surplus. MCA's also appear to have created distortions in the pigmeat trade at times, in particular for Benelux importers on the French market.

With the exception of milk, M. Schöpe's study is now somewhat dated and applies only to the original six members. It therefore seems worthwhile to extend his approach to more recent data and to the newer ESC members. This will be done for the wheat and beef and veal trade between the FRG, France and Italy, and for the beef and veal trade between the Irish Republic and the UK. These trade flows have been selected not only for their relative importance, but also because they have altered over the period considered and it is interesting to see how far these changes can be associated with changes in MCA's. However it is essential to stress that trade flows are the outcome of many factors and cannot be explained solely in terms of MCA's. This will become evident when the results of the analysis carried out here are reported.

Wheat.

Tables 6.1 and 6.3 show how France dominates the ESC wheat market accounting for 74.5% of intra-ESC wheat exports in 1977 and having a self-sufficiency ratio of 198% in 1978. In contrast
### Table No 6-1
WHEAT (INCLUDING DURUM WHEAT) - Share of each Member State in the EEC trade (sendings)

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<td>7.0</td>
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<td>79.7</td>
<td>81.6</td>
<td>83.4</td>
<td>84.2</td>
<td>49.6</td>
<td>71.2</td>
<td>74.5</td>
<td>79.5</td>
</tr>
<tr>
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<td>-</td>
<td>-</td>
<td>0.7</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Nederland</td>
<td>14.7</td>
<td>10.8</td>
<td>6.3</td>
<td>7.3</td>
<td>27.0</td>
<td>12.5</td>
<td>6.7</td>
<td>6.4</td>
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<td>4.6</td>
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<td>11.9</td>
<td>6.8</td>
<td>1.6</td>
<td>2.7</td>
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<td>0.2</td>
<td>-</td>
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<td>0.3</td>
<td>2.6</td>
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<td>0.8</td>
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<td>Danmark</td>
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<td>1.4</td>
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<td>2.4</td>
<td>3.9</td>
<td>3.2</td>
</tr>
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### Table No 6-2
BEEF AND VEAL (INCLUDING VEAL) - Breakdown of intra-community trade by sending Member State

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1) Carcasses and carcase equivalents calculated on the basis of the coefficient 0.53.
* Provisional figures

Source: Eurostat: These Tables are reproduced from CG./75/11
### Table 4.3 - Degree of self-supply

#### TOTAL WHEAT

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<th>Italia</th>
<th>Nederland</th>
<th>UEBL/ BLEU</th>
<th>United Kingdom</th>
<th>Ireland</th>
<th>Danmark</th>
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<td>52.7</td>
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<td>78.3</td>
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<td>91.3</td>
<td>53.5</td>
<td>45.8</td>
<td>27.8</td>
<td>155.7</td>
<td>103.7</td>
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<td>78.0</td>
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<td>50.3</td>
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<td>103.7</td>
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<td>155.7</td>
<td>103.7</td>
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<td>1976/77:1977</td>
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### Table 6.4 - Degree of self-supply

#### BEEF AND VEAL

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<th>Italia</th>
<th>Nederland</th>
<th>UEBL/ BLEU</th>
<th>United Kingdom</th>
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<td>109.8</td>
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<td>37.7</td>
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These Tables are reproduced from COM/75/11
both Italy and the FRG had a self-sufficiency ratio of less than 100%. As a result market prices for wheat were lowest in France, followed by Italy and then the FRG, as can be seen from Diagrams 6-1, 6-2 and 6-3.

As Table 6-5 shows Italian imports of wheat from France increased rapidly over the 1976-79 period. Diagram 6-1 seems to provide some indication of why this occurred. Until August 1980 the net effect of the French and Italian MCA's was to reduce the price of French wheat on the Italian market. (17) Despite the high cost of transporting wheat from France to Italy, since 1973 green exchange rates have helped France to compete and increase its share of the Italian market.

Similarly, although the wheat price for German wheat is above that of Italian wheat, the effect of MCA's is generally to reduce the price of German wheat below Italian prices (if transport costs are discounted). However the gap between Italian and German wheat prices on the Italian market is far smaller than that between French and Italian prices, and transport costs are likely to offset this German competitive advantage to a large extent. This together with the fact that the FRG is less than self-sufficient in wheat explains why German wheat exports to Italy are relatively small scale.

However there is another explanation of why French rather than German wheat fares better on the Italian market, namely because the demand for French wheat is not merely price-determined but depends also on quality. (18) In most EEC countries there is a shortage of wheat of sufficient
Diagram 6-1: Wheat Trade Between France and Italy

- French market price for wheat
- Italian market price for wheat
- French market price allowing for French M.E.N.
- French market price adjusted for French and Italian M.E.N.

Source: Agro Europa
Diagram 5-2: Wheat trade between the FRG and Italy

FRG market price allowing for German MCA

FRG market price allowing for German and Italian MCA

Source: Agro Europe

FRG market price for wheat

Italian market price (in WUS)

FRG market price allowing for German MCA

FRG market price allowing for German and Italian MCA
Diagram 6.3: Wheat Trade between France and the FRG

French Market Price Adjusted for French MCA

French Market Price Adjusted for French and German MCA

Source: Agra Europe

FRG Market Price for Wheat

French Market Price for Wheat
Table 6-5

The structure of the meat trade

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<thead>
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<th></th>
<th>EU</th>
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<th>FRG</th>
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Source: OECO International Trade Statistics
quality so the high quality French wheat will be bought even
where it is more expensive than wheat produced at home or
imported from other countries. This may explain the substantial
exports of French wheat to the FRG (see Table '6-5) despite
the situation shown in Diagram 6-3. From mid - 1977 to mid-
-1978 the net effect of MCA's was to raise French prices
above German levels on the German wheat market, even before
allowing for transport costs. Subsequently the gap between
French and German prices in the FRG has been relatively
small so transport costs are likely to have pushed French
above German wheat prices. Nonetheless French wheat exports
to the FRG have continued and may be explained by the
German wheat shortage and superior quality of French wheat.

**Beef and Veal**

As Tables 6-2 and 6-4 show, Ireland with a self-sufficiency
ratio of between 49.3% and 61.5% over the 1968-77 period and
France, whose self-sufficiency is also over 100% are the
main exporters of beef and veal in intra-EEC trade. Britain
and Italy, with low self-sufficiency are the main importers
while the FRG is important both as an exporter and an
importer. The export shares of France and the FRG in EEC trade
have been increasing, while that of Ireland has been falling
over the years.

In the diagrams 6-4 to 6-6, the market price for fat cattle
as published weekly in Agra Europe has been taken as
indicative of the market price for beef and veal in each
of the countries considered.
Diagram 6.4: Beef and Veal Trade Between France and Italy

- French market price for fat cattle
- Italian market price for fat cattle
- French market price adjusted for French and Italian mills
- French market price adjusted for French incidence

Source: Agri Econ
Diagram 6.5: Beef and Veal Trade between the FRC and Italy

- Italian Fat Cattle Price
- FRC Fat Cattle Price
- FRC Fat Cattle Price, after allowing for FRC livestock
- FRC Fat Cattle Price, after allowing for FRC and Italian feeds

Source: Agra Europe
Diagram 6.6: Beef and Veal Trade between Ireland and the UK

- Irish Market Price
- UK Market Price
- Irish Market Price Adjusted where the Irish MCAs were not equal to zero
- Irish Market Price Adjusted for Irish and British MCAs.

Source: Agra Europa
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1) Live animals converted on the basis of the coefficient 0.5 for fresh, chilled and frozen meat.

Source: Eurostat — 1) Provisional figures

Reproduced from COM/19/11
Table 6-7
UK Imports of Meat and Live Animals of Bovine Stock from the Irish Republic (tons)

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<th>1976</th>
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<th>1978</th>
<th>1979</th>
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<td>Live animals of bovine stock</td>
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<tr>
<td>Total</td>
<td>181511</td>
<td>270563</td>
<td>298261</td>
<td>224591</td>
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<tr>
<td>Total as % of all UK imports of these categories</td>
<td>57.9%</td>
<td>67.7%</td>
<td>69.4%</td>
<td>64.5%</td>
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</table>

Source: Overseas Trade Statistics of the UK.

Table 6-8
MCA Percentages

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<th>Ireland</th>
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<td>+12</td>
<td>-7.3</td>
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<td>1975</td>
<td>+0.3</td>
<td>-0.6</td>
<td>-11.9</td>
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<td>1976</td>
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<td>-9.9</td>
<td>-23.2</td>
<td>-15</td>
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<td>1977</td>
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<td>-32.8</td>
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</table>

These percentages are taken from the Table in Chapter 1.
With the exception of in 1974 and 1975, the overall EEC market for beef and veal has been undersupplied, so that market prices are determined more by relative shortages than by intervention prices. Thus for instance the Italian market prices tended to be above French levels. Diagram 6-4 shows that MCA's in general further reduced French prices so encouraging French beef and veal exports to Italy. This trend is evident in Table 6-6, though no data later than mid-1978 is available.

Although as Diagram 6-5 shows, in general there was little difference between German and Italian market prices for fat cattle, the effect of MCA's was to reduce the German price on the Italian market, so that even after transport costs, German beef and veal had a competitive advantage and could account for a large share of Italian imports as shown in Table 6-6.

Table 6-7 indicates that Irish beef exports to the UK increased between 1976 and 1978, falling back slightly in 1979. At first sight it would appear possible to attribute this pattern of beef trade to MCA's, but in fact the actual situation is far more complex. As shown in Diagram 6-6, until mid-1979, although Irish prices for fat cattle were generally above those of the UK, MCA's meant that Irish beef prices were lower on the British market. The emergence of a positive MCA would appear to account for the reduction of Irish beef exports to the UK from 1979. In practice however the pattern of beef trade between Ireland and the UK is also conditioned to a large extent by widespread
smuggling on the Ulster border. Smuggling has been a major problem since the mid 70's and has recently led to the introduction of strong measures. It appears that a large share of Irish beef exports to Britain were replaced by the smuggled exports of live animals. This then is just one example of how trade flows are influenced by a series of factors and cannot simply be explained in terms of deficiencies in the MCA system.

**Overall Trade Effects of the Agrimoney System**

The overall effects of the agrimoney system on trade are a combination of those effects arising when the system is functioning perfectly, and those caused by deficiencies in the system, and as such, overall trade effects are even harder to isolate and estimate.

One way in which the ESC Commission has tried to assess overall trade effects of the agrimoney system consists in a survey of ESC trade statistics, coupled with a very crude attempt to attribute a share of that trade to MCA's. This type of approach is not without interest. For example, COM/78/20 found that the positive MCA countries increased their share of intra-ESC exports of agricultural products, that German milk exports to Italy grew, as did Dutch imports of maize from non-ESC countries, and that the Netherlands was able to usurp Denmark to some extent in exporting
pigmeat to Britain. The problem is however that the approach provides no way of knowing how far these changed trade patterns are due to MCA's. This is partly because of the difficulty of isolating MCA effects from other factors influencing trade since, as COM/73/20 points out:

"Trade is the result of a combination of factors. The agrimoney system, in particular MCA's, is only one factor among many others which include surpluses or deficits on regional markets, marketing structures and infrastructures, commercial aggressiveness, natural events (draughts, floods), enlargement of the Community, action by member states, administrative difficulties and even fraud and numerous other factors."

In addition, the differences in MCA levels by product and over time make it very difficult to assess the impact of MCA's on trade.

Given these difficulties, M. Doseby and L. Venzi have suggested two alternative ways in which the overall impact of MCA's on trade might be estimated, namely constant market shares analysis and revealed comparative advantage.

Constant market shares analysis was first elaborated by H. Tryszynski (21) and J.D. Richardson (22) and seeks to explain favourable or unfavourable growth in a country's exports with reference to that country's competitiveness and export structure (i.e. the "composition and direction of exports"). According to
M. Loseby and L. Venzi, the application of this concept:—

"...to the data for individual commodity groups subject to MCA's tends to confirm the hypothesis that MCA's have influenced export competitiveness according to whether the exporting country has a strong or a weak currency."

Revealed comparative advantage was first used by B. Balassa, and entails that a country's comparative advantage is revealed by the export performance of different commodities on its export list. If MCA's alter the trade performance of EEC countries, this is likely to be reflected in a changed pattern of comparative advantage for the countries concerned. In particular MCA's might be expected to increase the comparative advantage of positive MCA countries in positive MCA goods, and that of negative MCA countries in non-MCA products. Although M. Loseby and L. Venzi did attempt to analyse how MCA's altered the revealed comparative advantage of France, Italy and the FRG, the time period they considered was too short to yield definite conclusions, so it seems worthwhile extending this analysis over a longer period here.

This involves calculating relative export indices for the various commodity groups on a country's export list and then ranking the commodity groups according to their comparative advantage, as revealed by the
strength of their export performance index.

Export performance is defined as depending on the structure and trend of exports, and structure is measured by:

\[
\frac{q_i}{q} = \frac{s_i}{s}
\]

where \( i \) = single commodity group

\( q \) = share of that country's exports in intra-ECC trade

\( q \) = total intra-ECC agricultural exports

\( \frac{s_i}{s} \) = relative share of that country's exports of

\( i \) in relation to its share in all intra-ECC agricultural exports.

The trend of exports is based on comparison of the relative shares at the beginning and end of the period considered, that is:

\[
\frac{s_i'}{s'} = \frac{s_i}{s^0}
\]

where \( ^0 \) indicates the beginning of the period, and ' the end.
The export performance indices are then defined as the arithmetic average of the relative share of the product, and its export trend weighted by relative share:

\[
\frac{1}{2} \left( \frac{S_i^f}{s^f} + \left( \frac{S_i^f}{s^f} \cdot \frac{S_i^o}{s^o} \right) \right)
\]

Applying this formula to Eurostat data, the export performance indices of the seven commodity groups in Table 6–9 have been calculated for five EEC countries and these commodity groups have been ranked according to the strength of their indices.

The results in Table 6–9 must be interpreted in connection with the average annual MCA percentage in each country, which for convenience have again been set out here in Table 6–8 for the countries and years considered. Only five countries are analysed since MCA's have generally been non-existent for Denmark and very small for the Benelux countries.

For the FRG the results are very much what might be expected if MCA's are assumed to influence trade. The German positive MCA's were fairly stable and substantial throughout the period, and with the exception of 1975, ranking of the commodity groups altered little, with non-MCA products in the last two positions.
<table>
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<td>3</td>
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<tr>
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<td>3</td>
<td>2</td>
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<td>3</td>
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<tr>
<td>fruits and nuts</td>
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</tr>
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<td>6</td>
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<td>2</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>7</td>
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<td>Ireland</td>
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</tr>
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<td>with wheat</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>5</td>
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<tr>
<td>and vegetables</td>
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<tr>
<td>and vegetables</td>
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<td></td>
</tr>
<tr>
<td>sugar</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>beef and milk</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>pig</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>milk and milk products</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
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<tr>
<td>fruit</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>fruit</td>
<td>3</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
For Italy negative MCA's were combined with a comparative advantage in non-MCA goods, but then the MCA almost disappeared in 1975, there was no change in the ranking of the commodity group.

In the case of France, with the exception of 1977, a larger negative MCA was generally associated with a slightly higher ranking of non-MCA goods (as in 1974 and 1975), while positive (1973) or smaller negative (1976) MCA's meant that the ranking of non-MCA products fell.

There seems little connection between the pattern of Irish MCA's and the ranking of comparative advantage and this may reflect the fact that many factors other than MCA's influence relative comparative advantage and the patterns of trade. Even using revealed comparative advantage, this problem remains.

**Conclusion**

Despite the problems of arriving at an accurate and comprehensive picture of how MCA's influence trade, it is impossible to deny that there is an impact on trade. The deficiencies of the MCA system giving rise to trade distortions are so numerous that it is inconceivable that such distortions could be eliminated without abolishing MCA's. Moreover, even perfect functioning of MCA's will entail trade distortions, and barriers on intra-ESC trade. Trade distortions and barriers on intra-ESC trade are therefore intrinsic to the agrimonetary system, and provide a strong motive for its reform.
Footnotes to Chapter 6

(1) Les Montants Compensatoires Monétaires, Dossier de la P.A.C., EEC Commission Document X/389/74


(3) P. M. Schmitz (79) EC Price Harmonization: A Macroeconomic Approach, European Review of Agricultural Economics 79/6


(5) See in particular N. Schöpe, (ibid.); A. Swinbank (ibid.), and V. Saccomandi (76) Crisi economica, integrazione europea, e politica agraria comune nel periodo 1973-76, Rivista di Economia Agraria 76/3

(6) See the two articles by C. Mackel cited above for more details.

(7) Described by D. Hassan and C. Viau (79) Les problèmes agrimonétaire de la C.E.E., Revue du C.O.R.D.E.S., Commissariat au Plan and
(7) cont'd. M. Hogg (78) What are the Affects on Trade Flows of the Coefficients Now Used to Calculate MCA's of Derived or Process Products? Paper for meeting of MCA experts, Brussels Jan. 1978

(8) A. Swinbank (ibid), page 32

(9) Described by A. Swinbank (ibid)

(10) S. Samir. (ibid)

(11) House of Lords Select Committee on the EEC, 18th Report 1976

Green Money

(12) Falling mainly into categories A and B of the list of defects above.

(13) M. Schöpe (ibid)

(14) No allowance is made for taxes and marketing costs which are assumed the same for all countries.


(16) Estimates taken from CC/78/11 of the ECO Commission

(17) M. Schöpe (ibid) provides estimates of transport costs for earlier years.

(18) This is described by M. Schöpe (ibid)

(19) In CC/78/20 and CC/78/11

(20) K. Loseby and L. Venzi (ibid)


(23) B. Balassa (65) Trade Liberalisation and Revealed Comparative Advantage, The Manchester School, May 1965
Chapter 7

The Affect of the Agrimoneyary System on the EEC Budget

In Chapter 1 it was stated that the agrimoneyary system imposed an additional burden on the EEC budget, and given the ongoing debate about the budget, it seems worthwhile discussing this effect of the system in a short but separate chapter.

This chapter will first consider the burden of the agrimoneyary system under various headings of the EEC budget, and some of the attempts to reduce that burden. Other costs of the agrimoneyary system which are invisible in the sense of not appearing in the EEC budget will then be discussed and it will be shown how the introduction of the EMU and the reforms which accompanied it reduced but did not eliminate the visible and invisible costs of the agrimoneyary system. Both visible and invisible costs of the agrimoneyary system entail financial transfers, and the implications of such transfers will be pointed out in the final section of the chapter.

A) The Burden of the Agrimoneyary System Appearing in the EEC Budget

i) Expenditure Appearing under the MCA Heading

Expenditure appearing under the MCA heading is shown in Table 7-1, both as the total of EUC spent and as a share of the EECG transfer section, which is that section of the EEC budget dealing with support of agricultural prices,
Table 7-1

<table>
<thead>
<tr>
<th></th>
<th>Total MCA Spending</th>
<th>Dual Rate Spending</th>
<th>Total FEOGA Guarantee Spending</th>
<th>MCA as % of Total FEOGA Guarantee Spending</th>
<th>MCA and Dual Rate as % Total FEOGA Guarantee Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>157</td>
<td></td>
<td>3659.6</td>
<td>4.3%</td>
<td></td>
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<tr>
<td>1974</td>
<td>138</td>
<td></td>
<td>3097.9</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>406</td>
<td></td>
<td>4727.4</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>438</td>
<td>406</td>
<td>4522.5</td>
<td>9%</td>
<td>18.7%</td>
</tr>
<tr>
<td>1977</td>
<td>859.9</td>
<td>509.5</td>
<td>5587.1</td>
<td>14.5%</td>
<td>24.5%</td>
</tr>
<tr>
<td>1978</td>
<td>716.9</td>
<td>1155.4</td>
<td>8672.7</td>
<td>8.3%</td>
<td>21.5%</td>
</tr>
<tr>
<td>1979</td>
<td>708.4</td>
<td></td>
<td>10440.7</td>
<td>6.8%</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>276</td>
<td></td>
<td>11314.9</td>
<td>2.4%</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td></td>
<td></td>
<td>11610.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982(1)</td>
<td></td>
<td></td>
<td>13217.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For an explanation of this table see the text

The estimates under the MCA heading include frauds which accounted for only 8.3 million ECU, or 0.03% of all spending under the MCA heading between 1974 and September 1978. (1)

ii) Expenditure Caused by the Dual Rate Effect

Particularly in 1977 and 1978 a large share of spending due to the agronomic system appeared on the EEC Budget but outside the MCA heading. This was due to what is known as the dual rate effect.

Until January 1976 payments to the EEC Budget were expressed in terms of the gold parity unit of account, (2) with the parities used to convert those units of account remaining unchanged since 1971. In contrast payments from the EEC Budget (in the form of aids, refunds, MCA payments etc.) were converted into national currency using representative or green rates. Though changes in green rates often lagged behind those in market rates, nonetheless the currency fluctuations from 1969 on meant increasing divergence between the conversion rates used for payments to, and green rates used from payments from the EEC Budget. Until 1977 the effect of using or different or 'dual' conversion rates was distributed among the different headings of the EEC Budget, with only a small share appearing under
the MCA heading. From 1977 the dual rate effect became so substantial that it was charged as a separate item on the EEC Budget, and the estimated size of the effect for 1976, 1977 and 1978 is shown in Table 7-1.

The irony of the dual rate effect was that if green exchange rates moved closer to market rates, EEC Budget expenditure under the MCA heading decreased, while that under the dual rate heading increased in such a way that the total burden on the EEC Budget grew.

In 1977 and 1978 part of what had previously fallen under the MCA heading was incorporated under the dual rate heading of the Budget. The Seventh FEOGA Financial Report estimates that in 1977 MCA spending under this category amounted to 250 million units of account and spending under the MCA heading was correspondingly lower.

iii) Total Agrimonetary Spending Appearing in the EEC Budget and the Attempts to Reduce it

Where the dual rate effect is recorded under a separate heading, the full impact of the agrimonetary system on the EEC Budget is best indicated by taking both the dual rate and the MCA headings, and as can be seen from Table 7-1 these accounted for over 20% of all FEOGA guarantee spending over the 1976-78 period.
This is a huge percentage, particularly as there were various cosmetic attempts to reduce the apparent burden of the agrimonetary system on the EEC Budget, such as the introduction of the negative franchise in 1975, and of the 'exporter pays' system from 1976 for products liable to ECA's being imported into Britain and Italy. This entails the exporting member state paying the importing member state's share of the ECA in intra-EEC trade. This measure was partly inspired by the notorious administrative delays in Italy (an the impatience of German exporters to Italy to receive their ECA payments more promptly) but also, according to the Seventh EECA Financial Report:

"...the effect of the dual conversion rate was heavily circumscribed by payment of the ECA's being made by the exporting member state whose currency did not give rise to this effect, instead of the importing member state which would otherwise have paid. Without this system the overall effect of the dual rate would have exceeded 300 million units of account for 1977."

From January 1978 the introduction of the ECU, or European unit of account (4) in calculations of budgetary contributions meant that the 'exporter pays' system no longer had any impact on the total level of agrimonetary spending in the EEC Budget (i.e. that under the ECA and dual rate headings). (5)

In general evaluations of the EMS (6) the ECU is often claimed to have had little practical importance. Consideration
of the agrimonetary sphere belies this opinion and use of the ECU from April 1979 in calculations of ESC Budgetary receipts, and to denominate the central rates of the full EMS members has had important implications for the burden of the agrimonetary system on the ESC Budget.

The application of the ECU to agriculture has drastically reduced the dual rate effect in a way that is likely to prove lasting. In general the value of the ECU and STJA are identical since April 1979 the dual rate effect has only arisen insofar as a country's green rate differs from its ECU-defined central rate, and hence its STJA. The lower levels of MCA's since April 1979 have shrunk the dual rate effect so much that it no longer needs to be entered as a separate heading on the ESC Budget, but is divided between the relevant ESC Budget headings as was the case prior to 1977.

Moreover even if the EMS is associated with greater fluctuations of its members' currencies in the future, it is unlikely that the dual rate effect will again reach the proportions of 1978 because the values of both the ECU and the STJA (and also the ECU-defined central rates) are all based on a basket of currencies.

The introduction of EMS has also reduced expenditure under the MCA heading of the ESC Budget, as shown in Table 7-1. This reduction can be attributed to the Gentleman's Agreement, the extension of the franchise, and the present determination of all ESC countries.
(except Britain) to cut their MCA levels. Whether this continues will depend on how far the EMS limits the frequency and scale of future currency changes of its members, and hence the scope for introducing new MCA's (11) and on whether political factors continue to work in favour of the elimination of MCA's. (12)

Costs of the Agrimonetary System which do not appear in the EEC Budget

The agrimonetary system also gives rise to costs which are invisible in the sense of not appearing either in the national or EEC budgets.

The most important of these invisible costs are those which arise from the impact of the agrimonetary system on the actual level of agricultural prices in the EEC. As shown by the EEC Commission (13) and in Chapter 2 economic costs of this kind have resulted from the use of the snake unit of account until 1979, which entailed an unintended floating upwards of common prices. Invisible costs have also arisen because the net effect of the green exchange rate system until 1979 was to lower the average actual level of EEC agricultural prices (14) and to increase them since then. As EEC agricultural prices tend to be above world levels, raising them still further will increase the economic costs of the EEC as measured in welfare terms, while lower economic costs are likely to result from lower EEC prices. In addition, by raising or lowering the actual level of EEC agricultural prices
and by causing price differences between the member states, the agrimonetary system will cause transfers between EEC countries and regions.

Transfers between EEC Countries and Regions Arising from the Agrimonetary System

Corresponding to the visible costs which appear on the EEC Budget, and the invisible economic costs which do not, the financial transfers which are caused by the agrimonetary system may be visible or invisible.

Visible transfers appear on the EEC Budget as payments to or from a country under the KCA and dual rate headings, as is shown in Table 7-2. If the problem of timing did not arise, only the estimates of net transfers would be of importance. However, as there may be considerable delays (of possibly 6 months) in KCA payments to farmers and because short term liquidity is so important to agriculture, gross transfers are also of significance, and these are likely to be far larger than net transfers.

In Table 7-2 there is a very crude attempt to estimate gross KCA payments, which entails summing the absolute amounts (i.e. ignoring the minus signs) of all payments to and from member states appearing in the EEC Budget.

In contrast, invisible transfers appear neither in the EEC
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<thead>
<tr>
<th>Year</th>
<th>Belgium</th>
<th>Denmark</th>
<th>EC6</th>
<th>France</th>
<th>Ireland</th>
<th>Italy</th>
<th>lux.</th>
<th>Neth.</th>
<th>UK</th>
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<td>1977</td>
<td>51.3</td>
<td>116.3</td>
<td>143.8</td>
<td>138.2</td>
<td>124.5</td>
<td>-34.6</td>
<td>0.1</td>
<td>17.0</td>
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<td></td>
<td>-5.4</td>
<td>31.2</td>
<td>-63.6</td>
<td>22.1</td>
<td>229.6</td>
<td>261.2</td>
<td>-0.1</td>
<td>-56.8</td>
<td>91.4</td>
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<td>62.5</td>
<td>141.5</td>
<td>451.9</td>
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<td>241.0</td>
<td>61.8</td>
<td>0.3</td>
<td>211.5</td>
<td>250.2</td>
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<th>EC6</th>
<th>France</th>
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<th>lux.</th>
<th>Neth.</th>
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<td>44.8</td>
<td>145.7</td>
<td>144.5</td>
<td>106.8</td>
<td>162.0</td>
<td>-42.5</td>
<td>-0.1</td>
<td>18.1</td>
<td>-53.4</td>
</tr>
<tr>
<td></td>
<td>31.7</td>
<td>143.8</td>
<td>62.3</td>
<td>64.2</td>
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The estimates are based on the exporter pays system.
Source: 1976 Annual Financial Reports
nor in national budgets, but arise from the fixing of common prices. It is clear that high common agricultural prices entail a transfer from consumers to farmers. Insofar as certain regions or countries are predominantly consumers or producers there will also be transfers between EEC regions and countries.

Measurement of the scale of these transfers between individuals, regions and countries in the EEC is extremely difficult. This is partly because it is necessary to assume that the situation would be in the absence of the system, and this involves problems. In the first place, there is a trade-off between MCA and price levels between member states in the annual price fixing sessions, so the absence of MCA's would imply different price agreements.

Secondly, measurement of transfers caused by the agrimonetary system is not simply a question of estimating the price differences between countries caused by MCA's. The CAP itself raises agricultural prices artificially high in the EEC, so causing transfers between member states. The impact of MCA's therefore depends on how the agrimonetary system alters those transfers arising from the CAP.

Measurement of transfers caused by the CAP itself requires a reference system of how things would be without the CAP. In general the world market situation is taken, but this ignores the impact elimination of EEC trade barriers would have on world markets, and as S. Tarditi and E. Croci Angelini...
suggest these might be substantial. There therefore seems a real need for developing an improved technique for assessing the scale of transfers arising from the CAP, so that the secondary impact of MCA's in creating transfers can also be derived.

In assessing the scale of visible and invisible transfers, care must also be taken to avoid double-counting. For instance there is a tendency to consider both lower prices enabled by negative MCA's (until 1979) and the MCA's paid by exporters to Britain and Italy as transfers to those two countries. However, as R. Bacon has shown (17) either the lower prices, or payments by exporters should be considered, but not both.

Aside from problems in measuring the scale of transfers, difficulties arise in assessing their impact at the national or regional level. This is just another way of expressing the more general problem of Chapter 3 concerning how to estimate the total welfare effects of the agrimoney system, though here emphasis is on the national or regional levels, and not that of the EEC as a whole. The need to develop a more viable alternative to partial equilibrium analysis which can be used to estimate the impact of such transfers again arises.

Despite these difficulties in assessing the scale and impact of invisible transfers, it is nonetheless certain that the MCA system has had the unintended effect of
causing visible and invisible transfers and being unplanned and unforeseen, it is doubtful that many of these transfers can be justified on equity grounds. In addition though the burden of MCA's on the EEC Budget has shrunk considerably, it still remains and may increase in the future, suggesting a further motive for reform of the system.
(1) This estimate is taken from CM/97/11 of the EEC Commission.

(2) See Footnote (7) of Chapter 2

(3) Article 2, Reg. 974/11

(4) See Footnote (7) Chapter 2

(5) This effect is described on p. 21 of the Eighth EEC Report.

(6) Such as by Föhl (April 1961) in an assessment of the EMS in a conference on 'The European Economy in the 1980's' organised by the IFO München, and by F. Ludlow, forthcoming book on the EMS.

(7) See Footnote (7) of Chapter 2

(8) See Chapters 2 and 10 for a more detailed account of the 'Gentleman's Agreement' and its effects.

(9) Described in Chapter 2

(10) As is evident from the political attitudes of member states towards MCA's which are set out in Chapter 9 and from the changes in MCA levels since 1975 shown in Table 10-1 of Chapter 10.

(11) As will be discussed in Chapter 10.

(12) See Footnote 10 above

(13) In CM/78/20 of the EEC Commission

(14) See in particular Chapter 3


Chapter 8

A Note on the Implications of the Green Exchange Rate System for the Balance of Payments

Considerable emphasis has been placed on how the green exchange rate system affects the balance of payments. In many recent articles including those of J. Marsch, A. Swinbank, the Cambridge Economic Policy Review Group, C. Ritson, P. A. Schimitz and S. Dickenson and J. Wildgoose, the balance of payments affect is generally defined as a combination of the impact of ICA's on the trade balance and on net financial transfers to and from the EEC budget, though at times there seems a tendency to equate trade and balance of payments effects. This chapter will demonstrate that although it is beyond dispute that ICA's influence the trade balance and the EEC budget contributions or receipts of a country, the assertion that ICA's also affect the balance of payments presupposes a particular view of how the exchange rate and the balance of payments operate. While this may be perfectly acceptable, it should be recognised that a stand has been taken in what is quite a controversial issue, and this is what the articles on green exchange rates generally fail to do. This chapter will first indicate certain assumptions underlying the literature of ICA effects on the balance of payments, and will then show why these assumptions imply a particular view of the balance of payments and exchange rates.

Common to all articles on how green exchange rates affect
the balance of payments is the assumption that the impact on trade balance will influence the balance of payments. Another assumption is that an exchange rate change (in the market or central rate) can alter the balance of payments. Hence the MCA affect on the balance of payments is said to arise because MCA's offset the impact of an exchange rate change on the products on which they are applied. This assumption is sometimes carried one stage further. If the exchange rate is used to obtain balance of payments objectives, it is argued that MCA's will entail a larger exchange rate change to achieve a given balance of payments objective. This is because the exchange rate change will induce no adjustment for MCA products, so it is claimed that adjustment elsewhere must be correspondingly greater. One example of this is provided by S. Tangermann (7) who said:

"From the point of view of an optimal international division of labour there is no a priori reason for exempting any sector of the economy from exchange rate changes. If single sectors of the economy are artificially shielded against the affects of revaluations and devaluations the exchange rates necessary to bring about the balance of payments objective will be larger and consequently adjustment needs for the rest of the economy higher. This is more the case the greater the importance of the
shielded sector is in the international trade of the economy. A brief diversion into exchange rate theory is useful at this point to illustrate that these assumptions imply a standard Keynesian elasticities or absorption approach to exchange rates and the balance of payments. If a monetary or Keynesian "price rather than volume" approach is taken, the validity of the assumptions is open to question, and it is far less certain that exchange rates or MCA's can influence the balance of payments.

The "Standard" Keynesian Approaches

Such approaches assume that changes in the exchange rate will produce changes in the balance of payments situation. This occurs because the exchange rate change alters the relative prices between the domestic and foreign countries, which in turn alters the volumes and values of exports and imports, and the balance of payments of the country concerned. Explanations of how this occurs vary from the elasticities approach to the absorption approach, but in general some mixture of the two is propounded, particularly after the work of Tsao. (1)

The elasticities approach has been expounded by
economists such as Joan Robinson(9) and shows the effect of an exchange rate by taking the equation \( B = X - M \) (where \( X = \) exports and \( M = \) imports), applying total differentiation with respect to the exchange rate change and translating the result into elasticities form.

The absorption approach was pioneered (though not originated) by J.S. Alexander. (10) This approach is based on the equation \( B = Y - E \) (where \( Y = \) nominal income and \( E = \) domestic expenditure or absorption) and illustrates that if an exchange rate alters income and expenditure by differing amounts, there will be a change in the balance of trade.

Both elasticities and absorption effects derive from the change in domestic prices relative to foreign prices which results from an exchange rate change. However MCA's offset this price change on the goods on which they apply, maintaining prices at the level existing prior to the exchange rate change. Hence the overall elasticities or absorption effects of a given exchange rate change will be reduced by MCA's, since these effects will not occur on MCA goods. Therefore according to this approach, the application of MCA's entails a larger exchange rate to achieve a specific balance of payments objective, and this is true whether the elasticities or absorption approach, or some mixture of both is accepted.
Monetary Approaches to the Exchange Rate Mechanism

In contrast most monetary approaches deny the balance of payments impact of an exchange rate change in the long run. In general such approaches assume that the exchange rate will effect the balance of payments only to the extent that it alters the demand for money relative to the supply, and so its effect can only be temporary, existing until stock equilibrium on the domestic market is inevitably restored. The alteration in domestic money conditions because of the exchange rate change will alter absolute price levels. (11)

According to such viewpoints, in the long run MCA's may alter the volume and pattern of trade, consumption and production, since the use of MCA's (like tariffs) is a 'real' policy and these are all 'real' effects. What the monetary view of the exchange rate mechanism denies is that a policy like MCA's can in the long run have an effect on the balance of payments, which is essentially a monetary phenomenon. Instead the monetary view generally argues that a policy like MCA's will have a long-run effect on the level of reserve holdings of a country. To illustrate how this occurs a devaluation of market or central rate is considered, with rate remaining constant. The devaluation will increase the domestic money prices of imports and import substitutes, but MCA's will offset this effect on the goods on which they apply, retaining the price for these products at pre-devaluation level. The increase in prices of non-MCA goods reduces the real value of
the country's initial stock of money relative to the demand for real money balances, which, in the absence of a change in the domestic money supply, will induce an inflow in foreign exchange. Thus in the long run the level of reserves will increase but the balance of payments position remains unchanged. The effects of MCA's will be to offset the initial price effects on certain products and thereby reduce the resulting change in reserve levels by an amount depending on the properties of the money demand function and the response of the domestic source component of the money supply.

In view of the wide variety and numerous differences between various adherents of the monetary approach perhaps the best way to avoid ambiguity and confusion is to quote adherents of this approach. These quotations relate to the effects of tariffs on the balance of payments, since the effects of MCA's are assumed similar to those of tariffs (see Chapter 3). The first two quotations are taken from the introduction of Frenkel and H. Johnson's book, where the two editors say:

"A tariff will improve the balance of payments only if it induces an excess demand for money. This rather simple condition is very different from the typical textbook analysis which emphasises the effect of the tariff on the relative price of goods."

These authors also quote Haytrey, from 'The Art of Central Banking', who says:

"... A protective tariff does raise the price level ... it accordingly requires an increased monetary circulation and if the monetary system is such that cannot be provided without an importation of gold, gold will be imported."

A further quotation is taken from M. Mussa, who argues:
in the long run a tariff has no effect on the balance of payments thought of as a flow, but does have an effect (under fixed exchange rates) on the level of a country's foreign exchange reserves, brought about by a temporary change in the balance of payments. 9

Here it is not intended to go into details of the monetary approach to the balance of payments, nor into the debate that it inspires. The aim in presenting this approach here is simply to illustrate that it is a matter of debate whether exchange rates and hence MCA's affect the balance of payments.

Keynesian 'Price Rather than Volume Approaches

This kind of approach will entail the following type of schema:

Devaluation $\rightarrow P_m \rightarrow RPI \rightarrow W \rightarrow P_x \rightarrow$ New devaluation

where $P_m$ is the price of imports, $RPI$ represents the retail price index, $W$ is wages, and salaries, and $P_x$ is the price of exports.

In terms of J-curve analysis the schema reflects a situation where devaluation is affecting absolute prices rather than volume of production, possibly because successive devaluations are occurring too closely together for volume effects to work through.

Monetary approaches may also accommodate a type of wage-price spiral, but this approach here is assumed to be essentially Keynesian in view of its assumptions of wage inflexibilities and that trade unions can effect inflation. In this way it can be shown that it is not only the monetary approach, but also certain versions of the Keynesian approach which maintain that MCA's will not result in a larger exchange rate change or greater adjustment elsewhere in the economy to bring about a given balance of payments objective.
Conclusion

The aim in setting out various approaches to the exchange rate mechanism here is to illustrate that the literature on green exchange rates tends to be based on the elasticities and/or the absorption approach. While this may be acceptable, there ought at least to be awareness that other approaches exist, and possibly some justification of why the elasticities and/or absorption approaches are preferred. Justification of one type of approach rather than the others is likely to prove extremely difficult. This is partly because there are so many versions of each and also because such empirical evidence as there is, seems extremely ambiguous, and supports at times one approach and at times another. As a result it is even more essential for the literature on MCA's to recognise that the link between exchange rates (and hence MCA's) and the balance of payments is by no means as simple as is sometimes assumed.
Footnotes to Chapter 8

(1) J. Marsh (77) UK Agricultural Policy Within the EEC, Centre for Agricultural Strategy, Paper 1, Reading

(2) A. Swinbank (78) The British Interest and the Green Pound Centre for Agricultural Strategy Paper 6, Reading


(4) C. Ritson (78) A Note on the Green Pound and the Balance of Payments: Journal of Agricultural Economics, 29/3

(5) P. M. Schmitz (79) EC Price Harmonization: A Macroeconomic Approach: European Review of Agricultural Economics 79/6


(7) S. Tangemann (78) Some Remarks on the Economic Consequences of the Economic System of the EC, Paper for a meeting of MCA experts, Brussels, Jan. 78


(10) S. S. Alexander (52) Effects of a Devaluation on a Trade Balance, IMF Staff Papers
This is explained in some detail in M. von Neuman Whitman (75) *Global Monetarism and the Monetary Approach to the Balance of Payments*; *Brookings Papers on Economic Activity*, 3, 1975

Frenkel and H. Johnson (76) *The Monetary Approach to the Balance of Payments*.

M. Mussa (74) *A Monetary Approach to Balance of Payments Adjustment*; *Journal of Money, Credit and Banking*. 
Chapter 9

Political Aspects of the MCA System

The way in which the agrimetary system operates in practice is determined to such an extent by political considerations that a Chapter on those political aspects seems essential to give a complete picture of the system.

The most important detailed study of the political aspects of the MCA system so far is that of J. Ritson and S. Tangevann.\(^1\) but while their approach is interesting it is incomplete and excludes certain factors which are of importance in deciding attitudes to MCA's. The aim here is to show how a framework used by many writers on protectionism can reduce the danger of this type of omission.

The Limitations of the J. Ritson and S. Tangevann Approach

J. Ritson and S. Tangevann correctly pointed out that the MCA system returns a certain amount of sovereignty in agricultural matters to the EEC member states by allowing them to lag movements in their green rates behind changes in their market or central rate, so enabling them to
control the level of national agricultural prices. There are of course constraints on the degree of freedom MCA's allow a country in that the green rate can only be moved towards the exchange rate and not away. This constraint has particular relevance for Ireland and Denmark, where green rate devaluations have followed those in the market or central rate with a rapidity that suggests support for higher agricultural prices than the MCA system, or the annual price fixing sessions allow. Aside from this constraint however, the MCA system does allow member states a certain leeway in pursuing national objectives in agriculture. As a result the factors which traditionally determined the national agricultural policy of a country now influence that country's MCA policy.

According to C. Ritson and S. Tengemann, the three most important factors influencing MCA policy are: farm structure, which they measure by population in agriculture and farm size; relative income levels, as indicated by GNP per capita, and the degree of self-sufficiency in agriculture. Also taken into account is the effect that 'Community preference' and common financial responsibility will have in encouraging an exporting country to push for higher prices than it would with an independent policy, and for an importing country to be more in favour of lower prices.

While these are important, they are by no means the only factors determining the MCA policy of a country. For instance the attitudes of farm interest groups, consumer associations and bureaucrats themselves are likely to play an important role. Alternatively MCA policy may be determined by the economic strategy of a Government, or may be changed because that Government wishes to obtain concessions from other EEC countries.
on other policy matters.

A framework used by many recent writers on protectionism (2) indicates how these additional factors determining MCA policy may be treated in a systematic and comprehensive way, and this will now be set out.

The Framework Provided by Considering the MCA Decision—

—Making Process—

It is not surprising that the theory of protectionism should offer a framework for analysing the political aspects of MCA's, since, as argued in Chapter 5, in many ways the green exchange rate system operates as a form of protectionism. The framework entails considering any protectionist policy as the outcome of the political bargaining process, and the basic assumption is of a 'democratic' political system on the North American or West European model.

According to such a framework, a policy such as MCA's is to be explained by three distinct phases of the political decision-making process. The first involves identifying those economic agents who expect the policy to affect their interests, and assessing how strong, and that those expected effects are likely to be. The second stage concerns how and whether the economic agents respond to the supposed effects of the policy, translating those effects into efforts. This response may be greater where the economic agents are organised in special interest groups to articulate their interests and bring them to bear on the political system. The third and final stage is the way in which the political system responds to those efforts on the part of economic actors.
In analysing each of these three stages for the specific case of MCA's the aim will be to isolate those factors which seem of most importance in determining MCA policy at the national and EEC levels. It should be stressed that the intention here is not to build a predictive model of MCA decision-making.

Before going on to discuss the three stages, an outline of the MCA decision-making process is useful.

**The MCA Decision-Making Process**

Only those changes in MCA levels caused by alterations in green exchange rates or in the way MCA's are calculated will be considered here. This is because changes in MCA's due to shifts in the central or market rates of EEC currencies cannot strictly be regarded as MCA decision-making as such, since agricultural (and so MCA) considerations play an extremely minor role (if any) in the determination of exchange rate levels in the highly industrialised EEC countries.

i) **Changes in MCA Levels Caused by Alterations in Green Rates**

The legal position with regards to a green rate change is that the EEC Commission should propose the change, and a qualified majority of the Council of Ministers should approve it. Article 43 of the Treaty of Rome also requires that the European Parliament should be consulted prior to any decision of the Council. At various stages the Commission and the Council may be advised by the Economic and Social Committee, the Special Committee on Agriculture, the Committee of Permanent Representatives and the various management committees (which are composed of Commission and national officials). In theory the procedure seems relatively straightforward and simple, but the practice is otherwise.

A majority of the green exchange rate changes are proposed as
... of the annual vixen session, each to be represented by one or several of the countries. In practice, however, unanimity is always required because of the practice that any country can insist on unanimity when the outcome of the vote is crucial to national interests or is otherwise the annual vixen session fails into this category.

While the procedural rules currently in force are not yet in the annual vixen session, the majority vote is like the Friesland that over the annual vixen, leading to a vote to the benefit of the commission. However, Ministries of Agriculture, on the other hand, have the advantage of a system that makes it as a procedural structure, applying only on the minority condition. The vote is distinct, since the right of the commission is simply to vote by the majority of the commission. For instance in September 1926 the British blocked the commission of the British wheat producers, and undoubtedly in view of John Blank's statement, the aim was to prevent any opposition to introducing a harvest tax. (4)

When in January 1926 to John Blank's surprise, the new German and Belgian agricultural ministers favored the idea of a wheat vixen devaluation, though they eventually were able to do so in three states. The ministry was interested in the vixen vixen. The vixen devaluation in the German agricultural sector, but seemed to show the situation of the vixen substantially amount of the wheat vixen.

In October 1926 the De Meulene and Dommel on blank...
French and Italian attempts to alter their green currencies by insisting that such changes should form part of the annual price review. However when the Council challenges changes in green rates, in this case as in others, the outcome usually seems to be delay rather than outright rejection.

ii) Changes in MCA levels caused by modifications in the system

MCA levels may also change because of modifications in the way in which MCA's are calculated. It is the responsibility of the ESC Commission to propose such changes, and though Council approval is required for more significant alterations, most are decided by the Commission alone. The dividing line between changes requiring Council approval or not is blurred, and has in the past led to confrontation. In June 1977 for example the Commission planned to revise MCA's on processed foods and to eliminate or reduce MCA's on many dairy products. An argument broke out between the German Agricultural Minister, Dr. L. and the Commission as to whether the plan could go ahead without consulting the Council. In the end it did, though with modifications to meet the German criticism.

Another Commission initiative in the same month to increase its control over MCA calculation by amending the basic MCA regulation (no.974/71) so as to allow the Commission to alter the level of intervention price used in any individual calculation met with less success. The Council was almost unanimous in its rejection of this proposal, which it thought would give the Commission a 'carte blanche' in fixing MCA levels.

Nevertheless the Commission retains a considerable discretion in deciding how MCA's are to be calculated. For instance on numerou
occasions the Commission fixed the MCA to apply in a given week at a level other than that implied by normal MCA calculations. (9)

The Three Stages of the Political Decision-Making Process

The way in which MCA policy is shaped in the decision-making process will depend on the three stages mentioned above, which relate to which economic agents expect to be affected by the policy, how they respond to the expected affect and how the political system accommodates their response. Each of these will now be considered in more detail.

It should be noted that the factors which determine MCA policy are often those which influence agricultural policy as a whole. This is not surprising given the trade off between MCA's and other agricultural policies, and the fact that MCA's form an intrinsic part of agricultural policy.

A) The Expected Affects of MCA's

The economic agents who might expect to be affected by MCA's include farmers, food manufacturers, middlemen (i.e. wholesalers and retailers), merchants, the general public in their role as final consumers, and those responsible for drawing up MCA policy, that is the members of the national and EEC administrations and legislatures responsible for MCA policy.

When policy makers assess how MCA's are likely to influence their personal interests, they take into account the interests of others affected by the policy, so that analysis of the latter is a necessary starting point for discussion, and it is convenient to postpone consideration of policy makers until
the response of the political system is examined.

As shown in Chapter 3, partial equilibrium analysis indicates the impact of MCA's on producers and final and intermediate consumers. Producers and intermediate consumers of MCA products are likely to feel the impact of MCA's far more than final consumers, because their income is directly dependent on the level of farm prices, while food is just one item, albeit a very large item, in final consumer expenditure.

If MCA's alter wholesale or retail margins, then middlemen may have strong opinions about MCA's, but it seems more likely that the effects of MCA's on prices are simply passed on, having little or no effect on margins.

As the profits of merchants are likely to rise with the volume of trade, where the complexity of MCA's discourages trade, as well as imposing an additional burden on merchants, MCA's will be opposed. Merchants who benefit from the new or greater trade flows caused by the system (as for instance between the FRG and Italy) may well favour MCA's.

The impact of MCA's on merchants or middlemen therefore varies to a large extent with the individual, so there is likely to be far less response from merchants or middlemen 'as a group' to MCA's than from farmers, food manufacturers or even final consumers.

B) The Translation of Expected Effects into Efforts

What is of particular relevance to MCA policy is that farmers and food manufacturers tend to respond in a far more vociferous and effective way to MCA's than does the general public in its role as final consumer. This may occur because producers expect to
be affected more by MCA policy, as mentioned above, or because they find it easier than consumers to organise special interest groups.

If an economic agent expects to be significantly affected by an economic policy, he may attempt to intensify and render more effective his response to the policy by joining or participating in the activities of an interest group. However this membership or participation will involve costs such as that to the group member of signalling his preferences, and the costs of administrative co-ordination, and attempts to influence the political system. For an economic agent to join or participate in an interest group the expected benefits of doing so must at least offset these costs. The expected benefits of joining an interest group depend not only on what the economic agent perceives as the expected impact of the policy, but also on how far he considers his links with the interest group as serving in obtaining a favourable policy outcome. This element of expected benefit is like the costs of interest group membership, in being determined by the structural characteristics of the group. Indeed for any policy, the corollary of structural features which entail lower costs is higher expected benefits, as the low costs make it easier to organise the interest group's response to the policy. Analysis of the structural characteristics of interest groups is therefore the key to understanding the response of economic agents to the potential affects of a policy.

In considering responses to MCA policy, two structural features are of particular importance, the homogeneity of members' preferences and the number of members, since these explain why farmers' interests often prevail over consumers' interests in deciding agricultural policy. Other structural characteristics of interest groups which may be relevant are the size and geographic...
distribution of individual members and the possible affiliation of the group to a political party. Each of these will now be considered.

i) The homogeneity of member preferences

Among the most important costs of forming and participating in an interest group are those relating to the co-ordination and the size of these costs will obviously be dependent on the similarity of members' preferences, with at least some similarity being a necessary condition for forming a group.

The preferences of the general public as food consumers and likely to be extremely diverse, with the sole common ground often being simply a preference for lower food prices. Not surprisingly co-ordination and decision-making costs tend to be so high that in many cases interest group activity or membership is no longer worthwhile. A noteworthy exception to this seems to be the powerful British Consumer's Association.

There will probably be far more similarity of preferences between farmers or between food manufacturers whose output is liable to MCA's within a country, though the differing impact of MCA by product group shown in Chapter 5 may imply differing strengths of those preferences. Likewise for farmers or food manufacturers whose output is not subject to MCA's, but whose inputs, or products competing with the output are. The most significant differences in preferences, either among farmers or food manufacturers are those which are based on national cleavages.

Too often the preferences of farmers in different EEC countries clash, rendering co-ordination and decision-making at the EEC level costly and difficult. That national cleavages should determine differences in preferences, given the differential impact of MCA's on member states. W. Averyt describes this
phenomenon:  "The fate of MCA's has pitted French farmers and the French Government on one side against German farmers and the German Government on the other. The German farmers refuse to accept a reduction in their incomes for the sake of monetary purity. French farmers (especially wheat farmers) wish to exploit the competitive advantage that would follow a devaluation."

This conflict was reflected inside COPA, or the Comité des Organisations Professionnelles Agricoles, which is an umbrella organisation into which all the most important farm groups are federated. Despite internal divisions COPA has managed to reach a compromise position which favours abolition of MCA's, though with compensation for farmers in revaluing currency countries to prevent them suffering any loss of income, so satisfying all COPA members.

Although different preferences have rendered co-ordination and decision-making costs high, the farm organisations have still been able to respond to MCA policy at the EU level in a far more effective way than the general public. The peak organisation at the EU level of the national consumers groups, NBCG, or the Bureau Européen des Unions de Consommateurs, has proved no match for the farmer's equivalent.

The number and size of individual members of the interest group:

The number of members of an interest group should not be confused with its collective strength, since this depends also on the size of individual members.

There is great uncertainty about whether, ceteris paribus, an interest group with fewer larger members is likely to be more effective than one of equivalent aggregate size, but
composed of numerous smaller groups. In particular K. Olson(11) has argued that if numerous membership is associated with "free riding" it will render the group less effective in its responses. Free riding occurs when individuals fail to participate in some collectively responsible activity, or in other words, achieving some public good) unless there is some inducement to individual participation, such as coercion or selective incentives. J. Pincus (12) provides a definition of free riding in the context of tariffs which could apply equally well to KCA's:

"In some limited sense each duty has some of the characteristics of a public good to the set of interested producers insofar as some (or any of them) in succeeding through their own efforts in obtaining a higher duty cannot exclude the rest from enjoyment or benefits. In other words there can be free riders who contribute nothing towards the common good, yet hope to enjoy the fruit of other's labour."

According to G.T. Stigler (13) free riding should be redefined cheap riding as it is unlikely that the ride will be absolutely free. This is because the individual incurs the cost of non-participating in that the public good is less likely to be achieved, or achieved on the same scale as when the individual participates. Though this refinement is correct, the more familiar name of free riding will continue to be used here.

Whether free riding occurs depends to some extent on the characteristics of the interest group. ... Olson(14) distinguishes between three types of group. Privileged groups are those with one or more members whose size relative to the group as a whole or whose interest in having the public good is sufficiently large...
to induce them to assume responsibility for obtaining it. In the other extreme ... Union defines a latent group to include a large number of members, each of whom feels that their efforts or participation will have no impact on the outcome so there is an incentive to join (or at least stay) idle. Between the two are inner elite groups in which at least some, though not all members feel that their participation, or lack of it, is likely to be noticed and have some effect on the choice of continuing the public good.

With the exception of intermediate colleges, the nature of latency is likely to be strong among consumers, as the nature of individual consumers is notoriously weak and unorganized; in such cases this latency may even prevent the consumer from joining a group.

The free rider problem becomes transformed for the privileged group, since the initiative of the leader on the affected matters may secure the public good even where other members free ride and exploit their latent consumers.

The evidence suggests that many inner elite groups fall into the uniliated category. For instance, until the late 1980s, the French Union Fédération Nationale des Syndicats d'Intérêts Sociaux (UNFIS) was dominated by the lower train and crypto-nest
producers, often at the expense of the poorer livestock farmers. The German DTV (Deutscher Tierzüchterverband) also seems to be run by and for the relatively bigger farmers. This can be seen in that the German part-time farmers maintained that the DTV did not represent their interests but only those of the large farmers, so split in 1972 to form their own group, the DVLV (Deutscher Bundesverband der Landwirte im Lebensmittel).

According to J. Averyt(15) not only are the national farm groups dominated by a few big members, but that this tendency is reinforced by the way the national interest groups aggregate at the EU level to form the COPH..., as he explains:-

"The elites that have the greatest resources to dominate the national farm groups are also the ones that dominate COPH in order to influence EU policy according to the diversity of political resources among the various groups of farmers. National farm policy in France or in Germany is complex enough, but EU farm policy is so byzantine that only farmers with huge amounts of resources, especially time, knowledge and wealth are able to understand the decision-making process sufficiently to be able to influence the output."

COPA leaders therefore represent an elite of
slices, they are drawn from large scale agriculture, chiefly in product areas such as grain and highly capitalised livestock... most members of the OCP... President can own more than 100 hectares of land! (6)

while the average Community Farm is only 17 hectares.

Returning to the problem of free riding as it applies to locust or interrelated group... then that such locating groups will only be effective if they fulfill other functions as well. hence is a group is located, its mobilisation will only be secured by the existence of selective incentives which are available only to those... a team with particular interest, selective incentives will similarly with the flow of private goods, and can be administered by a lender...

Local groups has often been exclusively concerned... local self help farm... functions, relating for instance to rules and external organisation, and... external farmers, such as the provision of information, advice etc...

proving one of the more problematic ways of selective incentives has been by the jolliet... and jolliet... 'cooperative district' located... one of the main... will illustrate... and strong links, at times amounting to partial fusion with
the Christian Democrats (DC). La Palombera (17) estimated that in 1961 the influence of the Coldiretti extended over approximately 40 DC senators and 66 deputies. In addition they have generally monopolised control of the post of Minister of Agriculture.

In the Italian political scene, it is not surprising that the ties between the DC and Coldiretti extend also to patronage and nepotism. The various enti or state organisations are generally regarded as spoils for the majority, and the Coldiretti have proved extremely successful in gaining control of enti such as Le Casse Mutue di Malattia and the Mutue Contadina. Moreover, the Corriera della Sera of 14th March 1978, for example quotes a case of enormous quantities of state funds going in payment of old age and disability pensions to Coldiretti members. (18)

S. Tarrow maintains that although the Coldiretti operates as a trade union for small farmers in the North of Italy, in the south it is:

"The corporate arm of the Government which dispenses patronage through a complicated system of interlocking directorates with the provincial agricultural sindicates."

With such a patronage machine at its disposal, the selective incentives available to the Coldiretti to ensure participation of its members are substantial.

The Coldiretti provide an example of another way in which free riding may be overcome, that is by a leader encouraging participation, and taking it upon himself to provide the selective incentives. The selective incentives may include provision of information, control of patronage, or the articulation of an ideal principle to inspire membership and activity of the group.
Each of these incentives was provided by Paolo Bonomi, who founded the Coldiretti in 1944 and was its head for many years. Bonomi meant strong leadership and tight control for the Coldiretti, lending his personal prestige to the group as a whole, and uniting it around the single, well-articulated ideal of encouraging the small owner farmer (civiltà contadina (19)). The decline of the Coldiretti during the 1960's and 1970's was to some extent inevitable, given a rural exodus which shrunk the agricultural percentage of the population from 44% after the war to 14% now, but the retirement of Bonomi due to old age and ill health was undoubtedly a contributory factor, as the Coldiretti missed the co-ordination, control, momentum and prestige that his leadership entailed.

Many farm groups have therefore been able to overcome the free riding problem by offering selective incentives, or because the group was 'privileged'. In contrast consumer groups tend to be of the 'latent' category, and offer less scope for selective incentives, so suffer far more from free riding than do farm groups.

iii) Other structural Features of Interest Groups which May Influence their Effectiveness

a) The aggregate size of the interest group

It could be argued that as the aggregate size of an interest group increases, so will its influence as it can wield more votes and resources, and thereby exercise more political clout. On the other hand, larger size could diminish the influence of the group, either by resurrecting the spectre of free riding or because the visibility which it entails may stir opposition and act as a check on the activities of the group. However it is doubtful whether visibility is a very potent constraint
since public and obvious exercise of influence is often met with tolerance. For instance in Ireland, the strong farmers' organisations long resisted taxation of farmers, while in the FRG, the obviousness of farm influence on the PDP does not render that influence less effective.

b) Monopoly of representation

If a group can claim monopoly of representation of certain interests, its status and possibly its influence could increase. However monopoly could also swell co-ordination problems to such a scale as to threaten the effectiveness, unity or even existence of the group.

This is illustrated by the German DBV (Deutscher Bauernverband which represented 90% of German farmers in the mid 1950's, and was officially recognised as the national farm group. However in 1972, the German part-time farmers claimed that the DBV did not represent their interests, but only those of the large farmers, so split to form their own group, the DBLN (Deutscher Bundesverband der Landwirte im Nebenberuf) (20).

Similarly at the EEC level, during the 1960's CCPA could legitimately claim to represent all the most important farm groups in Europe, and recognition of this by the Commission boosted CCPA's status. The Commission has a certain self-interest in having CCPA united, pre-eminent and capable of aggregating the multifarious demands of the European farm groups into one viewpoint. Given the enormity of this task, it is not surprising that there have been splits in CCPA, and attempts to form rival Eurogroups. One of the more successful of these was COMEPRA (Comité Européen pour le Progrès Agricole) which favoured small farmers and attacked the monopoly of CCPA. (21)
c) Geographical distribution

The relationship between the geographical distribution of an interest group and its effectiveness is also uncertain. A dispersed group is likely to encounter higher costs of aggregation, co-ordination and organisation. Against this, insofar as visibility is important, or in view of the contingencies of the electoral system, wider geographical dispersion may render influence less obvious and more effective.

d) Affiliation of the group to political parties

The question here is whether the effectiveness of the group is better served by affiliation to one or many parties. If the members of an interest group consistently vote for one party there may be special benefits when that party is in office, but on the other hand, if the party is sure of their votes, there may be an incentive to take the interest group for granted or to ignore its demands. Alternatively, if the party is out of office, the interest may have difficulties in dealing with rival parties.

In France for example, farmers cover the political spectrum, so politicians compete for the farm vote and are forced to take note of farmers' demands. On the other hand, diverse political allegiances further split the farm movement in France, so render it less effective.

In Italy the largest farm group, the Coldiretti, is closely associated to the Christian Democrats, but overcame the problem of being taken for granted through clientelism.

Opinion polls (22) indicate that the CSU-CSU in Germany accounted for over 50% of the farm vote in 1973. During the 1960's however
Many farmers felt that the CDU-CSU did not take adequate account of agricultural interests and voted for the right-wing National Party (or FDP). Opinion polls show that only 10% of the farm vote goes to the FDP, so when the CDU-CSU fell from power in 1959, a lean time seemed in store for the farmers. Events proved otherwise as the FDP was forced to form a coalition with the FDP, and FDP support was conditional on favourable treatment for farmers. As a result, the FDP leader, Artt, became Agricultural Minister and the crucial position of the FDP in holding the balance has generally ensured an adequate hearing for farmers since.

Conclusion: How Structural Features of Interest Groups May Affect the Response of an Economic Group to I.C. Policy

Of the various structural features of interest groups, the homogeneity of members’ preferences and the number and size of individual members indicate that firm groups may be more effective than their consumer counterparts in responding to the expected impact of I.C. policy. However, considerable problems are involved in reaching unambiguous conclusions as to how all the structural features, taken together, of an interest group are likely to influence the effectiveness of its response. This is because for any given group some features are likely to indicate
a situation that may have consequences for the quality of representation of the human "I" as a whole. The problem could be overcome by using differentiated data for individual interest groups, but the information applied to the firm and consumer groups, such a solution is likely to be impractical, not only because of the huge amount of information that is involved, but also because much of that information is not readily available. In practice therefore there are likely to be only very rough indications of how structural features may influence the response of a firm.

However, the response of an economic agent to an environmental policy, whether the agent is in the group of agents or not, is less important than are the rules that determine a more favorable relation between response and success in influencing policy. Success in influencing policy is helped by the awareness of the political system to the agents’ demands. This awareness depends on how far the interests of the policy maker coincide with those of other economic agents responding to the policy. How far the policy maker is committed to a particular strategy, and how the political system allows for representing the interests of a particular group in the decision-making process, can have a profound effect on how the policy is interpreted by the public.
C) The Response of the Political System

Why Policy Makers May Serve the Interests of Special Groups Rather than of the General Public: the Downs' Model

It sometimes appears that policies are designed to serve the interests of special groups rather than those of the public, and the question which arises is how this can occur in a democratic system. According to A. Downs, the fault lies in the defects, biases, and shortcomings of the collective decision-making process. According to A. Downs, politicians maximize their chances of re-election by competing for votes. They therefore adopt or reject a policy on the basis of how many votes are expected to favour or oppose it. Voters are assumed to know their preferences and to reveal them only if there is some advantage in doing so, such as action by the political agent in favour of the voter.

If all voters fulfilled these conditions to the same extent, economic policies would reflect the interests of the general public, but this is rarely the case in practice. In forming and expressing a preference, information and signalling costs are involved. It costs a voter time, money, and effort to assess how he is likely to be affected by a particular policy or its alternatives, and who is responsible for the policy. As the voter is assumed rational, he will only undertake these costs if there is some incentive to do so, such as the belief that by revealing his preferences, he will induce the politician to act in his favour. In other words, there is a minimum threshold of expected benefit, which is necessary for the voter to undertake the costs of information and signalling.

Both the cost and benefit side of this analysis point to why a policy such as the MCA's may reflect interests other than those of the general public. The MCA system is so riddled with
complexities and anomalies, that it is extremely costly in time and effort to assess what the likely effects will be, or whether there are viable policy alternatives. For the rational voter, to form and express preferences on MCA policy, substantial benefits must be expected.

As explained above, the impact of MCA's and hence of expected benefits will be greater for farmers and food manufacturers than for consumers. Information and signalling costs are likely to be larger for consumers, who form a heterogeneous group. In many cases costs to farmers and food manufacturers are reduced by interest groups providing information on the policy.24

There may be a learning process over time, which renders it worthwhile for more voters to form and express preferences. This seems to have occurred for farmers in Italy with regards to MCA policy, as since the late 1970's there seems to be greater awareness of the effects of MCA's.

A problem arises in that the Downs model was conceived for a relatively simple decision-making process, in which the legislature played the main role, so some modification is necessary to apply the Downs' model to EEC decision-making for MCA's.25 Far from being decided by a single legislature, MCA policy is shaped by 9 national legislatures, the European Parliament, the national administrations, and the EEC Council and Commission.

Applying the Downs model to the European Parliament and national legislatures is fairly straightforward, involving the assumption that members of these legislatures aim to maximise their chances of re-election by competing for votes (and possibly also for election contributions). This may entail courting interests other than the general public, and in particular the views of farmers and food manufacturers may be able to prevail on MCA policy.
It might be argued that the general public carries more votes so its views should have more weight. However even the power of the general public as voters is becoming a blunt weapon, with the infrequency of elections (except in Italy!) the tendency of politicians to present a package programme and the executive encroachment of the legislative power, so that many measures, including MCA's often owe more to bureaucrats than to elected politicians.

Modifying Downs to accommodate the executive will entail analysing the interests of bureaucrats. These are likely to be based to a large extent on considerations of prestige and self-preservation. Serving the general public is not always the best guarantee that these interests of bureaucrats will be met. For instance a policy favourable to special interests may be essential to ensure that the group continues to supply the information required for decision-making and without which the bureaucrat's prestige, if not survival, might be at stake.

The civil servants involved in MCA decision-making are the members of the national administrations, and the EEC Commission.

In recent years there has been a shift in the balance of power away from the EEC Commission and towards the Council. This is largely because the EEC Commission lacks political legitimacy, not being directly elected, and having little direct contact with major political forces in member states. As a result of this shift, the Council has become the place where final decisions on most matters of importance relating to MCA's are taken. It is here that proposals are accepted, rejected or refined, and that the ultimate balancing of interests occurs. Not surprisingly, the Council is a major target for the activities of interest groups concerned with EEC decisions.
Since members of the EEC Council are drawn from national administrations, a main channel for attempts to influence Council decisions has been through the national bureaucracies. This together with the shift in power from the legislatures has caused national administrations to become increasingly subjected to interest group influence and clientalism. The choice facing national bureaucrats has therefore become similar to that of legislators, namely, whether their own personal interests are served more by responding to the demands of a special interest group or to the public as a whole.

In some countries bureaucratic attitudes to ECA's coincide with those of farm groups, so that the national civil servants (be they members of the national administrations or the Council) may find the interest group a useful ally in obtaining the best possible deal for their country at EEC level. This was the case for Ireland, where farm organisation joined Government in the fight against ECA's.

The position of the EEC Commission is now very much against ECA's, an aim which is laudably 'European', favouring a return to a de facto common market. However it also serves the interests of Commission members whose concern for prestige and self-preservation demands resistance to any policy such as ECA's which, by allowing power to return to national autonomy, prises power away from them and their institution.

The EEC Commission is dependent on interest groups for information, and contact with grass roots in the member states. In theory the Commission should only deal with Eurogroups, such as CCPA and UECO, but in practice it also has contacts with
national groups, since as W. Averyt \(^{(30)}\) explains:

"The higher the stakes and the bigger the issue, the more inclined a Commissioner will be to make his own contacts with national groups to find out for himself what is going on at the national level."

Both in Brussels and the home country, the farm groups are better organised than their final consumer equivalents and this will entail a bias in the information which the Commission receives and is dependent on.

ii) Opportunities for Serving Interests Other than the General Public

Putting some other interest before that of the general public is not strictly 'democratic', so is far more likely to occur if undetected. This is possible if the secrecy, complexity or blurring of responsibility in the decision-making process makes it difficult to pinpoint the policy maker responsible for going against the interests of the general public. This seems the case for MCA and indeed CAP decision-making as a whole, which according to W. Feld is riddled with:

"... opportunities for different governmental and non-governmental actors to impose national interests through astute exploitation of the EEC decision-making process. On paper the distribution of functions among the Commission and Council for decision initiation and approval appears to be clear-cut. In practice however this process involves multilevel interaction and interpenetration among various Community institutions, national governments and administrations and interest groups."
however the international nature of decision-making does impose some check on national interests, with each of the members of the Council able to veto a policy which too overtly benefits interests in one country at the expense of those in others.

iii) Factors Other than the Interests of Economic Agents which May Influence HCA Policy

The framework used in this Chapter treats policy as being determined by the way in which the interests of all the economic actors likely to be affected by the policy (including policy makers) are aggregated in the political decision-making process. The way in which the interests are aggregated does not depend on the interests alone, but is also influenced by the availability of alternative policies, the concommitment of policy makers to an economic strategy, and the form of the decision-making process itself.

iii(a) The availability of alternative policies

When a policy such as HCA's is regarded as being determined by the aggregation of interests in the political process, the possibility of alternative policies, such as price policy, subsidies or direct income supports, should be borne in mind. This is because an economic agent may respond to the expected effects of HCA's, not by trying to obtain a favourable decision on HCA policy, but by lobbying for alternative policies to achieve the same outcome.

iii(b) Economic Strategy and the invisible hand

Another important determinant of decision-making is the possible commitment of policy makers to an economic strategy,
and [Richardson] has called this the 'political invisible hand' or the 'wisdom of turbid masses.'

The commitment of policy makers to a strategy for the overall economy may influence N.E.A. policy. For instance, the determination of the present British government to cut import requirements, by inter alia, promoting agriculture has entailed large positive N.E.A.'s.

Another example is provided by Denmark and Ireland, where the importance of agricultural exports to the economy strategy has encouraged policy makers to involve the market rate as soon as possible in the cost-benefit evaluation, to avoid negative N.E.A.'s which would reduce export prices.

This is the form of the decision-making process.

The form of the decision-making process is also of importance in establishing what the final balance of interests and strategy will be in deciding a thing. The question which then arises is whether the decision-making procedure for N.E.A.'s is optimal or whether it could be improved, and this will now be considered.

Loesten (10) has shown how the framework provided by J. Buchanan and T. Trolle (14) can be used to assess the efficiency of decision-taking by the U.S. Joint Chiefs of Staff. In this framework, the cost is equal to the U.S. decision-making process...according to J. Buchanan and T. Trolle, the best decision-making rule is that which...and has social interdependence costs...as interpretations...costs represent the cost to an individual of collective decision-making. Interdependence costs comprise decision-making costs and external costs.
Decision-making costs relate to the time, effort, concessions, promises and other non-individual actions in order to arrive at a collective decision or consensus. Clearly the longer in time and the more absolute the promise, these costs will increase with the number of individuals who must agree to the decision.

Internal costs to the individual arise from the actions of others who are expected to be large if all individuals are individually influenced. These costs will be zero if people have to agree to the decision, reaching a limit where the unanimity rule applies, since any individual can vote actions likely to result in the unanimity rule. Therefore, internal external costs, but which does decision-making costs.

In the two types of cost yields a cost schedule of social interaction, which in theory can be drawn for all individuals and actions. Hypothetically this cost schedule is meant to have the unshaded form unilaterally associated with very high costs, so that a minimum can be found which indicates the area for individual voting rules.

As mentioned above, in theory from majority changes require a simple rule, only a majority of the. Counting, but where these changes are part of the price positioning unanimity approval is warranted, not to have strong currency changes proposed by various states have been enacted, it is impervious that they be voted outright.

Costs technical changes in the U.S. federalism can be decided by the 10 state actors, and though in principle all are independent U.S. decisions reaching majority approval of the Senate, in practice must no be used for any major decision. One way that involves external costs by giving rise to discussions in trade and communications in the preparation stage such, without new rules and the potential impacts or new products avoid telecommunications in their immediate and results achieved, if any allow the country to
pursue these diverse objectives, placing the burden on other member states. For instance, the FRG uses MCA's to keep prices, and hence incomes higher for German farmers, but the resulting increase in production, exports (and possibly surpluses) is probably at the expense of other EEC farmers and tax payers.

Green rates can only be adjusted towards market rates, thereby reducing MCA's. When a country proposes to alter its green rate this entails reducing or eliminating external costs to other EEC members, so it is not surprising that they rarely oppose changes in green rates, and then only to gain further concessions from the country proposing the change.

The EEC Commission is responsible for proposing technical changes in the MCA system, and given this institution's commitment to dismantling the system, the proposed technical changes generally imply reduction or reform of MCA's. Despite such proposals, the MCA system continues and this can be attributed to the unanimity rule which is required de facto for important MCA decisions. Certain countries, and in particular the FRG and Britain, favour the additional leeway MCA's allow them in meeting national objectives, so through the unanimity rule have been able to block attempts at MCA elimination. Thus the unanimity rule may hinder rather than facilitate the abolition of MCA's and of the external costs which arise from the system.

On the other hand the frequent use of the unanimity rule boosts MCA decision-making costs. The administrative costs of the EEC are notorious, as is the expenditure in time and effort in the annual price-fixing marathons, where reaching consensus takes an ever increasing number of months (until June in 1979). In order to find a compromise in the price fixing session which can be agreed unanimously, a number of
issues are bundled together in a package, and log-rolling is used to achieve consensus.

Log-rolling in the price fixing session may be explained by the example of country A that wants to increase its prices by altering its green rate; country B that wants to raise all common ESC prices, and country C that favours a compromise with smaller price increases by both methods. At first sight a compromise position close to that of C would appear satisfactory to all three countries. If however log-rolling is introduced, then country A may support country B's claim in return for B supporting country A. The net result would be a much larger overall price increase, and this is generally what happens in the price fixing session, as W. Averyt\(^{(35)}\) says:

"A painless form of agreement is always to accept the demands for higher prices for others..."

In this way MCA's may have contributed to the CAP price spiral, since during the price fixing session, countries may at times have consented to increases in common prices in order to gain acceptance for a proposed change in green rate, be it to increase or decrease domestic prices. Even apparently isolated changes in green rates were often linked to the price package, in the sense of preparing the ground for it.

The MCA decision-making process does not therefore seem to be at an optimum, either from the point of view of decision-making or external costs. As the major decisions on MCA's undoubtedly affect the 'vital national interests' of member states, it is difficult to see them foregoing the unanimity rule. However in recent years there has been a growing awareness of the external costs of the MCA system, which distortions
in trade and competition. Those countries worst hit by these external costs may insist on reduced MCA's as a condition of their approval for other ESC policies which are unanimously decided, and in this way the scale of future MCA's may be limited.

The market and hierarchy approach

An alternative method for assessing the efficiency of decision-making is provided by O. Williamson and D. Treece (36) who maintain that a decision, such as that to implement the CAP, can be posed as a contract, and so can be explained by transaction cost analysis, that is, by "an examination of the manner in which human agents cope with complex events in the face of uncertainty". The two basic assumptions are that economic agents are boundedly rational so have only limited information, and that they may be opportunist by "cutting corners for undisclosed personal advantage, covering tracks and the like". The underlying problem in drawing up any contract is therefore to avoid opportunism and yet economise on bounded rationality. Thus contracts fall into two categories: complete contracts, which foresee all contingencies, and eliminate all possibilities for opportunism, but which are prohibitively costly because of bounded rationalism, and incomplete contracts, which are less costly but allow the possibility of opportunism.

The question which arises is what kind of contract setting up the CAP involved. Clearly it was not a merger since the member states maintained considerable control over their own affairs, the right to withdraw, and remained preoccupied with their own private profit stream, rather than that of the ESC as a whole. Instead the contract entailed an agreement to maintain common prices and to avoid attempts to carve up the market along
national lines. The one obvious uncertainty of this type of agreement is international monetary fluctuation. Though this entails returns to the member states different from those initially envisaged, it could nonetheless be accommodated without compensatory measures, despite certain adjustment difficulties.

When it was decided to implement the CAP in 1967, it was thought that common prices would render monetary fluctuation impossible, so the proposal to introduce measures to accommodate this contingency were considered 'defeatist'. (37) As a result the 'contract' was staggeringly incomplete, and the currency fluctuations after 1969 brought desperate measures to shore up the contract. MCA's were introduced as a temporary measure to ease short run adjustment, but even the decision to introduce MCA's represents an incomplete contract, in that it failed to foresee the huge distortions in trade and competition soon to arise from MCA's, and the opportunities for MCA fraud.

Given the wide degree of uncertainty arising from monetary upheavals, the contract required to completely offset their effects would have to be sophisticated, comprehensive and strongly binding. It is hard to see EC states accepting such a contract, given their differences in objectives in national agricultural policy, and a certain reluctance to sacrifice national autonomy. A complete contract seems impossible; but an incomplete one just makes matters worse by creating opportunities for fraud, and distortions in trade and competition. In such circumstances, it might have been preferable not to attempt a contract to deal with monetary uncertainties, particularly when that contract took the form of the MCA system, however this discussion must be postponed until Chapter 10, which deals with the reform of the MCA system.
Footnotes to Chapter 9

(1) C. Ritson and S. Tangermann (79) *The Economics and Politics of MCA's*, European Review of Agricultural Economics


(3) *Agra Europe* of 2/9/77, 9/9/77 and 16/9/77

(4) *Agra Europe* of 27/1/78

(5) *Agra Europe* of December 1978

(6) See Chapter 2

(7) *Agra Europe* of 24/6/77, 10/6/77 and 17/6/77

(8) *Agra Europe* of 17/6/77

(9) For an explanation of how the MCA level is normally fixed, see Chapter 2


(12) J. Pincus (ibid)


(14) M. Olson (ibid)

(15) W. F. Averyt Jr. (ibid)
(16) This example is taken from W.F. Averyt Jr. (ibid)
(17) J. La Palombara (65) Interest Groups in Italian Politics, Princeton
(18) S. Tarro (67) Peasant Communism in Southern Italy, Yale UP
(19) G. Guizzardi (76) La Civiltà Contadina—struttura di una Ideologia
der il Consenso, in A. Carbonaro Religione e Politica—il Caso
Italiano Coines, Roma
(20) W.F. Averyt Jr. (ibid)
(21) W.F. Averyt (ibid)
(22) W.F. Averyt Jr. (ibid)
(23) A. Downs (57) An Economic Theory of Democracy, Harper and Row, NY
(24) As for instance by the British NFU (National Farmers' Unions)
(25) The Free Pound: A Special Insight Report
(26) This account of the interests of bureaucrats is likely to be
relevant in MCA decision-making is a simplified version
of the list provided in the context of CAP decision-making
and including "power, prestige, income and security" by
W.j. Feld (79) Implementation of the European Community's Common
Agricultural Policy: Expectations, Fears, Failures, International
Organisation 31/3
(27) W.F. Averyt Jr. (ibid)
(28) This is described by W.J. Feld (ibid). A slightly different
version is given by C. Tigenderkatt (3/3/80) Some Thoughts on the
European Communities Budget, a speech given to the
(21) Council of Food, Institute of World Economic Research, London, where he said:

"I know it is argued that ministers for agriculture are not creatures apart from the communities of which they are members, and that their ministers are workers not in the national capitals but in the national capitals so as to take account of non-agricultural interests. The fact of the matter is, however, that such the agricultural council serves only to mediate and to mediate again and again, themselves able to engage in trade-offs between the various agricultural interests and the little amount retained to the interests of temperate and cold countries, or the limits of community finance."

(22) J.F. 16 (1961.) describes this phenomenon, citing the Irish example.

(23) W.M. 16 (1961.)

(24) W.F. 16 (1961.)

(25) W.F. 16 (1961.) and W.F. 16 (1961.) also found the political invisible hand of power in determining protectionist policies.

(26) W.F. 16 (1961.)

(27) L. Buchanan and S. McKeen (17) The Calculus of Consent, Ann Arbor

(28) W.M. 16 (1961.)

(29) L. Buchanan and S. McKeen (17) The Calculus of Consent, Ann Arbor
(37) As described by B. Kohr (74) was wird aus dem EG-Aufsichtsrat?

Währungspolitische Erschütterungen verstärken die ungelösten Probleme der EG-Landwirtschaft, Wirtschaftskonjunktur

Heft 3, IFC - München.
Chapter 10

Reform of the Green Exchange Rate System

The adverse effects of the green exchange rate system on the market situation of farmers, trade and the EEC Budget which have been discussed in earlier Chapters are now widely recognised and suggest that reform of the system is necessary. Such a reform must resolve two questions: the dismantling of existing MCA's and the prevention or limitation of the emergence of future MCA's.

The dismantling of existing MCA's is rendered difficult in that most large remaining MCA's are positive, and farmers in countries where they apply (such as the UK and the FRG) oppose any reduction of MCA's which would cause them to accept lower farm prices without compensation.

The extent to which new or larger MCA's are likely to emerge in the future will obviously depend on how successful the EMS is in limiting future currency reshuffles between EEC states. Though to date the EMS has limited the scale and frequency of exchange rate changes, the amount of currency speculation within the system; the continuing uncertainty of the international monetary system and (as explained in Chapter 2) the hesitation in developing the institutional arrangements essential to the second phase of EMS, suggest that the possibility of increased currency changes and (in the absence of further reform) larger MCA's cannot be ignored.
Various proposals (1) for reform of the system will be considered here and will be assessed according to how far they meet the problems of existing and future MCA's. In deciding what reform proposal to implement it is also necessary to bear in mind how the reformed system is likely to resist manipulation by the political bargaining process which was described in Chapter 9.

One possibility would be to rely exclusively on a reform introduced in 1979, the 'Gentlemen's Agreement' so its operation and prospects will be discussed, but this option will be rejected in view of the limitations of this reform. The problems of a proposal based on tariff theory, and one which recommends fixing MCA levels so as to leave the market situation of farmers unchanged, will then be pointed out. Finally preference will be expressed for a reform which would involve abolishing green exchange rates, and using direct income supports, if necessary, to compensate farmers for changes in their market situation which follow exchange rate alterations.

The Gentleman's Agreement

The Gentleman's Agreement (2) was introduced in April 1979 and recommended, though it did not require the abolition of then existing MCA's. It did however require that any new MCA's emerging after that time should be eliminated in two equal slices at the beginning of the two following market years.

The 'Gentlemen's Agreement' is therefore a compromise
between those who wanted to retain MCA's and those who wanted to eliminate their adverse effects. There was a widespread belief that the adverse effects of MCA's arose because they were applied at too high a level over too long a time. The reform was therefore aimed at limiting the scale of future MCA's and ensuring that they operated as a temporary mechanism, as originally intended. In this way it was hoped that MCA's could compensate more exactly the change in market situation of farmers following an exchange rate alteration, and so induce fewer distortions in trade and competition.

However it is open to question how far the 'Gentleman's Agreement' will keep future MCA's small and temporary. It is important to recall that the EMS is not a fixed exchange rate system, and does not exclude exchange rate adjustment by its members. If, as is not inconceivable, the currency of a country belonging to the EMS is adjusted at least every two years, then it is possible for that country to conform to the 'Gentleman's Agreement' but still retain MCA's on a semi-permanent basis.

Though it is still too early about final judgements about how far the 'Gentleman's Agreement' has succeeded in limiting the scale of MCA's, Table 1C-1 shows that almost all MCA's have shrunk since 1979. However most of these reductions were in MCA's existing prior to 1979 so were not strictly necessitated by the 'Gentleman's Agreement' and seem to be motivated more by the growing
Table 10-1
Quarterly Average MCA

<table>
<thead>
<tr>
<th>Year</th>
<th>FRG</th>
<th>France</th>
<th>Italy</th>
<th>Benelux</th>
<th>UK</th>
<th>Ireland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan–March</td>
<td>+9.3</td>
<td>-19.7</td>
<td>-18.9</td>
<td>+1.4</td>
<td>-31.1</td>
<td>-3.8</td>
<td>-</td>
</tr>
<tr>
<td>April–June</td>
<td>+8.3</td>
<td>-15.7</td>
<td>-15.1</td>
<td>+1.4</td>
<td>-39.2</td>
<td>-8.0</td>
<td>-</td>
</tr>
<tr>
<td>July–Sept.</td>
<td>+7.4</td>
<td>-8.0</td>
<td>-11.2</td>
<td>+1.4</td>
<td>-25.6</td>
<td>-0.5</td>
<td>-</td>
</tr>
<tr>
<td>Oct.–Dec.</td>
<td>+10.0</td>
<td>-10.6</td>
<td>-15.1</td>
<td>+2.9</td>
<td>-27.9</td>
<td>-2.5</td>
<td>-</td>
</tr>
<tr>
<td>1979</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan–March</td>
<td>+10.8</td>
<td>-10.6</td>
<td>-16.4</td>
<td>+3.3</td>
<td>-27.2</td>
<td>-2.5</td>
<td>-</td>
</tr>
<tr>
<td>April–June</td>
<td>+10.8</td>
<td>-5.7</td>
<td>-10.6</td>
<td>+3.3</td>
<td>-16.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>July–Sept.</td>
<td>+10.8</td>
<td>-4.4</td>
<td>-7.1</td>
<td>+3.3</td>
<td>-3.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oct.–Dec.</td>
<td>+10.8</td>
<td>-3.7</td>
<td>-6.8</td>
<td>+1.9</td>
<td>-8.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1980</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan–March</td>
<td>+10.8</td>
<td>-3.7</td>
<td>-7.3</td>
<td>+1.9</td>
<td>-3.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>April–June</td>
<td>+10.5</td>
<td>-1.4</td>
<td>-8.1</td>
<td>+1.9</td>
<td>+1.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>July–Sept.</td>
<td>+9.1</td>
<td>-</td>
<td>-3.8</td>
<td>+1.8</td>
<td>+2.9</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oct.–Dec.</td>
<td>+8.8</td>
<td>-</td>
<td>-1.0</td>
<td>+1.7</td>
<td>+8.8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan–March</td>
<td>+8.8</td>
<td>-</td>
<td>-1.0</td>
<td>+1.7</td>
<td>+15.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>April–June</td>
<td>+6.5</td>
<td>-</td>
<td>-1.0</td>
<td>-</td>
<td>+13.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>July–Sept.</td>
<td>+6.5</td>
<td>-</td>
<td>-1.0</td>
<td>-</td>
<td>+8.7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Oct.–Dec.</td>
<td>+8.3</td>
<td>-</td>
<td>-3.9</td>
<td>+4.3</td>
<td>-4.9</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Weighted averages have been taken of the weekly MCA's in AgrE Europe.
awareness of the adverse effects of the green exchange rates, coupled with the demands of the agricultural lobbies (in Italy or France) or by the political bargaining game of the EEC (the FRG). Whatever the motives the end result of reduced MCA's is to be welcomed.

However as Table 10-1 shows, the FRG still has a large positive MCA, indicating that the 'Gentleman's Agreement' has not resolved the problem of reducing existing MCA's. Indeed because the German MCA dates from before 1979, its continued existence is consistent with the 'Gentleman's Agreement'.

A further problem is that Britain, which had the largest negative MCA in April 1979, and the largest positive MCA now (March 1982) is not bound by the 'Gentleman's Agreement'. Although in December 1979, in order to obtain acceptance of a proposed green pound devaluation at EEC level, Britain insisted on application of the 'Gentleman's Agreement', this is unlikely to occur when application runs counter to British interests.

With the exception of Britain, limitations in future MCA levels will depend on how far the EEC limits exchange rate adjustments between EEC countries. To date such adjustments as have occurred have been small, and considerable prior consultation has taken place in all cases. On each occasion measures were taken to prevent
increases in existing MCA's or emergence of new ones. However as the performance of ESC economies seems to be diverging rather than converging it is doubtful whether the EMS will succeed in keeping exchange rates so small over a longer period. If there are larger adjustments between ESC currencies in the future, there will also be scope to re-introduce greater MCA's. Even if MCA's were eliminated in the two successive years, the aim of the 'Gentleman's Agreement' to eliminate MCA's would be thwarted especially if exchange rates altered at intervals of two years or less.

A further problem for the 'Gentleman's Agreement' arises from the underlying assumption that if MCA's operate as a temporary mechanism, their adverse effects will be minimised. As shown in Chapter 5, the impact of exchange rates, and hence MCA's varies between farmers, and even for the same farmer over time, so that even acting as a temporary mechanism MCA's will give rise to distortions in the market situation of farmers. Similarly even temporary MCA's may represent a burden on the ESC Budget and will cause trade distortions. Although similar, shorter-term MCA's will reduce these adverse effects, they will by no means eliminate them.

Given these limitations of the 'Gentleman's Agreement' alternative reforms of the green exchange rate system continue to be proposed, and various of these will now be considered.
A Proposal Based on Tariff Theory

Tariff theory, and in particular the argument for the combined use of tariffs and subsidies suggests one way of reforming the MCA system. According to this argument, a protective measure such as green exchange rates may be justified to cushion either producer prices (after a revaluation) or consumer prices (after a devaluation) but never both producer and consumer prices together. The policy implications of this are that if MCA's are considered necessary to shelter consumer prices after a currency depreciation, the full depreciation effect should be allowed on producer prices. In this way the adverse effects of MCA's on the allocation of production could be reduced, while offsetting the inflationary pressures of higher food prices. Similarly if MCA's are used to prevent a sudden fall in producer prices after a revaluation, the most efficient solution is to allow the full revaluation effect on consumer prices. In both cases the exchange rate change would have a differing effect on consumer and producer prices, and a system of taxes and subsidies on domestic consumption or production would be necessary.

However implementation of this proposal is unlikely and undesirable in view of the extremely difficult and
expensive administration it would involve, and the huge possibilities it offers for fraud.

The Proposal to Fix MCA Levels so as to Leave the Market Situation of Farmers Unchanged Following an Exchange Rate Alteration

As shown in Chapter 4, certain agricultural economists have argued that the positive function of MCA's as a compensatory measure can be fulfilled without any adverse side effects if the level of MCA's is fixed so as to offset exactly the changes in either the agricultural terms of trade, or real sectoral income of a farmer which follow an exchange rate alteration.

It was explained in Chapter 4 that both versions of the proposal assume that the law of one price holds for inputs to agriculture, and the real sectoral income version of the proposal requires the further assumption of PPP. Given these assumptions, it is argued that MCA's applied at the full percentage of the exchange rate change and in a semi-permanent way, as was often the case in the past, will improve the market situation of farmers in countries with appreciating currencies, and will worsen that of farmers in depreciating currency countries. To prevent these changes in market situation occurring, the proposal entails altering the way in which MCA levels are set.
In the case of the agricultural terms of trade version of the reform (6) this will entail calculating indices of the relative farm input prices, which compare the index of farm input prices in each country to the equivalent index for all countries in the ESC. This index of relative farm input prices is then applied to MCA's in such a way that MCA's in depreciating currency countries are reduced by an amount depending on how much faster input prices are rising than elsewhere. As MCA's in depreciating currency countries keep the level of farm input prices down, the effect of applying the index in calculating the MCA level is to raise output prices by an amount equivalent to the rate at which input prices are rising elsewhere. As a result the agricultural terms of trade are left unchanged.

The mechanism can also be applied in countries with appreciating currencies, where MCA's raise farm prices. To ensure that the agricultural terms of trade remain unchanged, it would be necessary to reduce MCA's by the amount by which farm prices are lower than elsewhere.

Setting MCA levels to leave the real sectoral income of farmers unchanged is slightly more complex. In this case two indices of relative prices must be constructed, one for farm input prices as above, and another which takes account of how the prices of
the final consumption of farmers move in that country relative to in all EEC countries taken together. For simplicity an index of relative retail prices is generally used to indicate the relative movements in the price of products finally consumed by the farmer. The two indices then have to be combined using a weighting which depends on some average or exemplary measure of the share of the farmers expenditure absorbed by inputs. The combined index is then applied to MCA's in a way similar to that above, so that MCA's in depreciating currency countries will be reduced by an amount depending on how much faster both series of prices are increasing than elsewhere, as measured by the combined index. Similarly in revaluing countries, the reform may entail reducing MCA's by an amount depending on how much slower prices are rising than elsewhere, as measured by the combined index.

However both versions of the reform proposal encounter certain problems. As shown in Chapter 5, neither PFP, nor the law of one price, as applied to inputs to agriculture hold very well in the short run, which is the time period of most concern to agriculture, and the consequences for the reform proposal are serious.

If the assumptions are not valid, then differences in the prices of inputs and final consumption of
farmers between countries will not be associated with
the different performance of the exchange rates of those
countries. As a result it is conceivable that the prices
for inputs and final consumption of a farmer rise faster
in revaluing countries, and slower in devaluing countries.
If this were the case the reform proposal would not
lead to a reduction of MCA's and could, if allowed to
function in this way, even lead to an increase in MCA
levels.

A second consequence is that as long as there are
differences in input prices between countries (and/or
differences in input consumption of
farmers for the real sectoral income version of the
proposal) even when no changes in exchange rates occur,
the reform proposal entails that there will be MCA's.
MCA's will therefore be used to offset differences in
the agricultural terms of trade or real sectoral income
of farmers between countries, even when these differences
are not linked to exchange rate performance. (9) For
instance the proposal would require MCA's to offset
lower prices for inputs arising from the comparative
advantage of a particular country. Use of MCA's in this
way is likely to run counter to the ESC objective of
satisfactory allocation of agricultural resources. (10)
but even if compensation for this type of cost
difference were desirable, MCA's do not seem the
appropriate mechanism to use.
Both versions of the reform proposal are also likely to run into problems of practical implementation. The effect of a rise of output prices on the agricultural terms of trade or real sectoral income will vary between farmers. This is because the structure of inputs and the share of input in output may vary even for a single farmer over time, or between farmers producing the same commodity on the same scale; so this will be even more true for farmers of different types, operating on different scales. If MCA's are to succeed in leaving the market situation of farmers, measured either by real sectoral income, or the agricultural terms of trade unchanged, MCA's will have to vary between farmers, and even for the same farmer over time. Clearly operation of the MCA system to take account of such differences is virtually impossible, but failure to do so will thwart the aim of leaving the market situation of farmers unchanged.

It may be argued that the proposal to fix MCA's according to real sectoral income or the agricultural terms of trade could be used in a selective way, simply as a means of eliminating existing MCA's. In other words only where the proposal required a reduction in MCA levels would it be applied.

However, even this form of the proposal encounters problems. As long as PPP and the law of one price for inputs to agriculture do not hold in the short run, the proposal offers no guarantee that MCA's will be reduced,
and will ultimately be eliminated. The proposal could well entail that MCA's are not reduced, or are only reduced over extremely irregular time intervals, so that if the aim is gradual phasing out of MCA's a more secure way of achieving this aim would seem to be automatic reduction of MCA's at fixed intervals (as for instance was proposed by the ESC Commission in COM(77)482).

It may be claimed that basing MCA reductions on the agricultural terms of trade or real sectoral income renders it more acceptable or equitable. However, the fact that the proposal is applied asymmetrically (i.e. in reducing but not increasing MCA's) undermines this argument. If the proposal were applied, German and British farm groups are likely to oppose having to accept lower agricultural prices when their market situation indicates that MCA's should be cut, while being refused higher prices even though their market situation implies the need for greater MCA's.

Such hefty objections make support even for the more selective version of this proposal difficult so it is now necessary to consider an alternative and more acceptable suggestion for reforming the agrimonetary system.
Abolition of the Green Exchange Rate System, and the Introduction of Alternative Measures, such as Direct Income Supports which Could Compensate Farmers where Necessary for Changes in their Market Situation Following an Exchange Rate Change

In Chapter 3 it was shown that the green exchange system has met its objective of easing inflation in weak currency countries and has allowed flexibility to national agricultural policy but that these were only achieved at the expense of adverse effects on trade, and on the market situation of farmers. These adverse effects are intrinsic to the system and can only be avoided if the system were abolished.

Since 1979 the green exchange rate system can no longer be defended because it keeps the actual average level of agricultural prices in the ESC down, since, as shown in Table 10-1, positive MCA's now far outweigh negative ones. Elimination of MCA's (while retaining the CAP) would therefore reduce the average actual level of such prices in the ESC so improving the allocation of agricultural resources between the ESC and the rest of the world. At the same time lower prices would ease the problems of surpluses and of the ESC Budget.

As shown in Chapters 4 and 5, MCA's were not (and probably could not have been) sufficiently flexible to meet the objective of offsetting changes in the market situation of farmers following exchange rate alterations.

Given the failure of the green exchange rate system to meet its objectives, and the adverse effects to which it gives rise there seems a strong case for scrapping the system and
introducing a more flexible policy with better prospects for compensating more exactly the varying changes in market situation which may follow and exchange rate alteration. A number of agricultural economists (13) have suggested using direct income supports for this purpose, operated largely on a national basis. Direct income supports could be used in a selective way for those farmers who are considered to need compensation for changes in their market situation after an exchange rate change. This would form part of a more general function of direct income supports which entails allowing greater flexibility to EEC agricultural policy in taking account of the differing needs and circumstances of EEC farmers, while at the same time preserving common pricing and financing for EEC agriculture.

The abolition of the green exchange rate system could be achieved by the automatic reduction of existing MCA’s at fixed intervals, accompanied, if this were thought necessary, by the gradual introduction of direct income supports. Increases in existing MCA’s or introduction of new ones would be prohibited. In this way it would be possible to overcome what is now the main obstacle to abolishing green exchange rates, namely the positive MCA’s of Britain and the FRG, since, if so desired, direct income supports could be used to compensate farmers in those countries for any cut in agricultural prices the elimination of MCA’s involved, thereby winning their acceptance of abolition of the system.
There has been much debate about the merits of direct income supports\(^{(14)}\) so the discussion here will be extremely brief. It should now be evident that the question of reform of the green exchange rate system simply forms part of the wider question of reform of the CAP. The basic problem of the CAP which the recent EEC Budget difficulties brought to crisis point, is that the policy is essentially a price policy and the political bargaining process described in Chapter 9 operates in such a way as to ensure continual upward pressure on agricultural prices. If the problem of the EEC Budget (over 70% of which is now absorbed by the guarantee or price support section of FEOGA) and the growing food surpluses is to be solved, it must be by restraint on EEC agricultural prices. The medicine of lower price increases for EEC farmers could be made sweeter by national income supports used selectively in case of necessity.

A system of lower common agricultural prices and direct income supplements operated largely on a national basis is likely to prove more resistant to manipulation in the political bargaining process than the present policy. In particular there will be less scope for the present system of log-rolling whereby each member Government agrees to the demands of price increases by others in order to obtain concessions for themselves. By operating direct income supports largely on a national basis there seems a better prospect of containing the burden imposed by agricultural spending on the exchequer, especially as national Governments have a better record than the common EEC institutions on this score.
It is sometimes claimed that the introduction of a system of direct income supplements in the EEC is likely to create administrative problems, because to operate on strict criteria it would have to be based on farm accounts and many EEC farmers do not keep such accounts. However, farm accounting is becoming increasingly widespread, and even applied in an approximate, less exact way direct income supports can still meet their major objectives, while presenting no more difficulties than the system of deficiency payments applied so successfully in the UK in the past.

Administration of a system of direct income supports to compensate the impact of exchange rate changes on farm incomes could be in two phases. During the initial period of dismantling MCA's, a possible solution would be to calculate how much farmers would have received in MCA's, and distribute that amount in direct income supports. Subsequently, compensation for exchange rate changes would simply be assumed under the more general criterion of income level in deciding the distribution of direct income supports. Exchange rate changes are simply one of the factors influencing farm income, and distributing national income supports on the basis of the farmer's level of income would automatically compensate for the affect of the exchange rate change on income level, so there would be no need to calculate the income affect of exchange rate changes separately.
In this way a major problem associated with the proposal to set MCA levels to leave the real sectoral income or agricultural terms of trade of farmers unaltered is avoided. Such a proposal required the assumption of PPP or the law of one price for inputs if MCA's were to compensate only for those changes in market situation caused by exchange rate alterations. In this case an incomes policy, direct income supports, is being used to raise income, and no distinction necessarily has to be made between exchange rates and the other factors influencing income levels.

Payment of direct income supports would be made at discrete intervals – possibly monthly, three-monthly or annually – depending on which solution was most feasible and appropriate to the country concerned.

A problem does arise in that a system of direct income supports is easier to administer where the agricultural sector is composed of relatively few large-scale farmers, as is the case for much of the grain and livestock production of Northern Europe, and in particular, that of Britain. Where there are a large number of small farmers, as for instance in the production of olive oil and wine, the administration of direct income supplements becomes extremely costly and complex. For certain products
in specific countries it might therefore be necessary to delay the introduction of direct income supports and to allow the continued use of MCA's as a temporary expedient to compensate farmers for a change in their market situation after an exchange rate alteration if this is thought absolutely necessary. This use of MCA's is unlikely to be permanent or widespread. It seems likely that the trend of declining farm population and larger farm size in these sectors will continue, ultimately rendering direct income support for farmers producing such products possible. Moreover, the problem tends to be associated with the Mediterranean products of Italy, Greece, and Southern France. In the past these countries have generally had weaker currencies; and if, as seems likely, this continues, the MCA's that could be introduced on certain products would be negative. Negative MCA's entail lower prices, so would worsen the already grave problems of small farmers producing Mediterranean products. Thus even if MCA's were allowed to continue for a time in such cases, their use is unlikely to be widespread.

Direct income supports have the advantage that they can be applied for limited periods and to those farmers who need them most.

On allocative grounds there is much to recommend tempering the present heavy reliance on price policy
by direct income support because the latter has no direct impact on consumer and producer prices. Whereas the present price policy stimulates production by increasing marginal revenue, this is less the case for lower common agricultural prices accompanied by direct income supports, especially as direct income supports are unlikely to apply to all farmers. As a result EEC agricultural production is likely to be lower than under the present policy, thereby easing the problem of surpluses.

In Chapter 3 it was shown how the CAP and the green exchange rate system may alter the actual average level of EEC prices and protection, thereby giving rise to welfare effects. Under a system of lower common prices and direct income supports, EEC agricultural prices are likely to be more in line with world trends, so giving rise to smaller welfare costs. Because direct income supports do not directly alter price levels, the welfare costs which they cause consist in the difference between the revenue from the extra resources used to produce those agricultural goods which are supported, and the loss of revenue for farmers who would have deployed those resources elsewhere in the agricultural or non-agricultural sector. Such welfare costs will be less than those sustained under a system of price support. (15)

In addition to lower allocative disturbances, a system of lower common agricultural prices and direct income
supports is also likely to result in less distortion of EEC agricultural trade. It would render possible the abolition of barriers to EEC trade imposed by MCA's so that prices of EEC agricultural products could become "common" again. At the same time the trade distortions arising from the malfunctioning of the MCA system could be avoided.

Given that the green exchange rate system meets so few of its objectives, and gives rise to adverse effects, abolition of the system, and possible introduction of this alternative policy seems to offer a better prospect for EEC agriculture.
Footnotes to Chapter 10

(1) The proposal of J. Marsh (77) *European Agricultural Policy: A Federalist Solution*, New Europe Winter 1976/77, which entails MCA's continuing, though nationally financed, will not be discussed here as the problems of this proposal have been pointed out by T. Heidhues, T. Josling, C. Ritson and S. Tangermann (77) *Common Prices and Europe's Farm Policy*, Trade Policy Research Study.

(2) The 'Gentleman's Agreement' accompanied introduction of the EMS, as explained in Chapter 2.

(3) In September 1979 there was a 2% revaluation of the Deutsch mark and a 3% devaluation of the krone; in November 1979 there was a 5% krone devaluation; in March 1981 the lira was devalued by 6% and in October 1981, the FRG and the Netherlands revalued by 5.5% and France and Italy devalued by 3%.

(4) As described in Chapter 2.

(5) This is shown by N. Ilooten (80) in a paper for a conference at the Johns Hopkins Bologna Center on the political economy of the EMS.

(6) This argument is described in H. Grubel (77) *International Economics*, Richard Irwin Inc.

(7) cont'd. ...bei Wechselkursänderungen um System der EWG
Agrarmarktordnungen, Agrarwirtschaft, Heft 5
(8) G. Jarchow (ibid).
(9) S. Tarditi (ibid) and W. von Urff (ibid).
(10) This point was made by H. Ahrens (79) Auswirkung des Währungs-
ausgleichs auf die Wettbewerbsposition der Landwirtschaft
in der EG, eine Analyse am Beispiel Deutschland, and by
K. Schöpe (75) Auswirkungen von Wechselkursänderungen und
unterschiedlichen Preisssteigerungsraten auf die Wettbewerbs-
position einzelner EG-Länder im Agrarsektor, Studien zur
Agrarwirtschaft, IFO-München
(11) This point was made by H. J. Block (75) Grenzausgleich und
EG Agrarmarkt: ein Beitrag zur Kontroverse um die
Wirkung des Grenzausgleichs, Agrarwirtschaft
(12) Mentioned by H. J. Block (ibid), K. Schöpe (ibid) and
W. von Urff (ibid).
(13) U. Koester and S. Tangermann (77) Supplementing farm price
policy by direct income payments: Cost-benefit analysis
of alternative farm policies with a special application
to German agriculture, European Review of Agricultural
at a conference on the CAP by the Arbeitskreis für
Europäische Integration, Tübingen
(14) See for example U. Koester and S. Tangermann (ibid), and
J. F. van Reimsdijk (73) A system of Direct Compensation
Payments as a Means of Reconciling Short-run to Long-run
Interests, European Review of Agricultural Economics 1/2

(15) G. Meester (ibid.)
The indices of product prices for individual product groups have been taken from CSO (1973) as INSTAT data were too disparate, with several indices being produced for each product group. The derivation of input prices for individual product groups proved problematic as neither the 19 Commission nor INSTAT produce such indices, and national indices are incompatible, the 1970 'Results' of the 19 Commission publication, the Farm Accounts Data Network (P.D.), together with INSTAT data have been used to obtain weighings of the various components of inputs for summary producing categories, beef, pigmeat and milk.
Inputs are broken down into: costs of machinery, of land and buildings, general costs, miscellaneous livestock costs (which in turn comprises costs of feedstuffs and animals for breeding) and miscellaneous crop costs (seeds, fertilizers, soil improvers and crop protection). Eurostat indices for the price of these input components can then be applied to the weightings obtained, so deriving the indices for total input prices in Table 7.

The cost of living indices used in calculations for individual product groups are the same as those for all products taken together, though converted to a 1973 base, so it was thought unnecessary to present them in a separate table.

The share of inputs in the output of different product groups in Table 6 was also derived from FAO data.

Estimates of annual HCA percentages are the same as those in Table 1 of Chapter 1 so that Table has not been repeated here. Table 10 shows estimates for the share of all agricultural products subject to HCA's which are taken from JO.(78)20 and JO,(79)11. Calculation of the hypothetical producer prices for all products taken together assuming no HCA's is then possible using the formula set out in Chapter 5, and the results are presented in Table 10.

The equivalent estimates for hypothetical producer prices of individual commodity groups are in Table 12. As HCA's by product were not readily available for all years, the annual HCA percentages in Table 1 of Chapter 1 have been used, as above, and these are the HCA percentages applying to the largest number of products.
The hypothetical input prices as used in the N.O.N.'s have been calibrated on the basis of the formula in Chapter 5, with the results for all farmers together in Table 11, and those for individual product groups in Table 13. Since all farmers are considered together, estimates of the various components of inputs (c, d, e, f, and g) are based on average data and on Table 1 of this Annex, which indicates goods and services consumed in agriculture as a share of total inputs.

For analysis of individual product groups, it has been necessary to supplement average data with a break-down of inputs based on P.E. data. Following Naisbett (2), it is assumed that a share of input prices is determined by the cost of services, such as transport, processing and distribution etc., and that such costs will not be affected by the elimination of N.O.N.'s in the absence of alternative sources of services. Naisbett's figure of 0.4 has been taken for the share of input prices excluding such service costs, in both the analysis of all product taken together and that of individual product groups.

Calculation of the hypothetical cost of living, assuming N.O.N.'s in 1954 based on the formula in Chapter 5, and the results are presented in Table 15, following Naisbett and 1. Murdoch (2), the rental factor, has been taken as 0.5 so as not to be removed from W.A. Naisbett's formula of 0.45, which relates only to France and the U.S.A. Naisbett's estimate of 0.4 has been taken for the share of N.A. goods in which is food, tobacco and beverages in final expenditure. Estimates for c have been taken from the U. S. Yearbook of National Accounts Statistics. The resulting estimates of q are set out in Table 14.
Footnotes to annex 1


### Annex 1, Table 1

**Product Prices of Agricultural Products**  
1970=100

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Estimates exclude V.A.T.

Source: Table F5 in the Agricultural Yearbooks of Eurostat.

### Annex 1, Table 3

**Consumer Price Indices**  
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Derived from the IIFS (International Financial Statistics of the IMF)
Annex 1, Table 3

Estimated Share of Total Inputs to Agriculture Which Are Accounted for by Goods and Services Currently Consumed in Agriculture

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Average: 83.2 80.0 77.3 89.5 81.0 82.4 80.4 78.9 80.4

(1) No estimate is given of spending on small material, maintenance and repair, so the figure of 80% has been taken rather than the average.


(3) Estimates based on expenditure.

(4) These figures are high because the estimate for total inputs excludes VAT, so have been left out in calculating the average.

Source: Eurostat Agricultural Yearbooks, Table 3-4
### Annex 1, Table 4

**Indices of the Purchase Prices of the Means of Agricultural Production**

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Source: Eurostat indices for goods and services consumed in agriculture and for goods contributing to agricultural investment, and the Agricultural Yearbooks.

### Annex 1, Table 5

**Share of Inputs in Final Production of Agriculture**

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1978 figures are provisional.

Source: Table 3.1 of Eurostat Agricultural Yearbooks.
### Annex 1 Table 6

**Producer Prices for Individual Product Groups**

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Source COM/79/11 apart from (2) which are from Eurostat

(1) Pigmeat prices were exceptionally high in 1973 throughout the EEC.
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The derivation of these estimates is explained in the text.

(1) 1973 FAO: Results were not available so 1975 results have been used.
Annex 1, Table 8

The Share of Inputs in the Output of Different Product Groups

- **Cereals**
  - France 52.3%, Italy 36.7%, UK 39.9%, FRG 66.3%

- **Beef and veal**
  - France 58%, Ireland 44%, UK 64.7%, FRG 76.1%

- **Pigmeat**
  - France 66.5%, Belgium 63.3%, Netherlands 70.6%, UK 76.3%, FRG 79.8%

- **Milk**
  - FRG 61.2%, France 53.2%, Italy 40.4%, Belgium 51.3%, Netherlands 53%
  - UK 62.7%, Ireland 40.3%

Source: FADN 1973 Results

Annex 1, Table 9

Share of Products Subject to HOA's by Value of Final Production

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(1) The low percentage for Italy can be explained by the predominance of Mediterranean products (60% of all agricultural output).

(2) The large percentage change for Luxembourg is due to specialisation in dairy and beef production.

Source: COM/78/20 and CCH/79/11

1970 figures have been used in calculations for all years from 1970 to 1975, with 1976 and 1977 data being used for those years. The sole exception is Luxembourg where it was assumed that there was a steady increase in the share of HOA goods as follows:

- 77.7 78.9 80.2 81.4 82.6 83.8

In all countries 1977 figures have been used for 1978.
Table 10, Annex I
The Hypothetical Producer Prices of Agricultural Products, Assuming No NCA's

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(1) The effect of having no NCA's is only assessed from 12/5/71

Annex I, Table 11 The Hypothetical Purchase Prices of Farm Inputs

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(1) The effect of having no NCA is again assessed only from 12/5/71
### Annex 1 Table 12

**Hypothetical Producer Prices For Individual Product Groups, Assuming No MCA's**

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Annex 1 Table 13

Hypothetical Input Prices for Individual Product Groups, Assuming No MCA's

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### Estimates of $q_{it}$

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1977 estimates were also used in calculations for 1978.

### The Hypothetical Cost of Living (1970=100)

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<td>278.4</td>
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</table>
Annex 3:
Comparison of actual market situation of farmers of all products taken together in each EEC State with what their situation would be without NEM's

1) Market situation as measured by
   Agricultural terms of trade: FRG

2) Market situation as measured by real
   Sectoral income: the FRG

   Actual situation
   Hypothetical situation with NEM's

3) Agricultural terms of trade: France

4) Real sectoral income: France
Separate data was not available to assess real sectoral income for Luxembourg.
Annex 2
Diagram 2: Comparison of the actual market situation of farmers of individual product groups with what their situation would be without men's

a) Common Wheat: The Agricultural Terms of Trade

b) Common Wheat: Real Sectoral Income
c) Common Wheat: The Agricultural Terms of Trade

- UK Hypothetical Situation of No MEAs
- Italy Hypothetical Situation of No MEAs
- UK Actual Situation
- Italy Actual Situation

e) Beef and Veal: The Paasche Food Terms of Trade

- FRG Actual Situation
- FRG Hypothetical Situation of No MEAs
- France Hypothetical Situation of No MEAs
- France: Actual Situation

f) Beef and Veal: Real Sectoral Income
g) Beef and Meal: Agricultural Terms of Trade

- Hypothetical Situation of No MPA
- Actual Situation

h) Beef and Meal: Real Docked Income

j) Pigmeat: The Agricultural Terms of Trade

- FEH Actual Situation
- FEH Hypothetical Situation
- France Hypothetical Situation
- France Actual Situation
Annex 3

The Results of a Regression Carried Out between ECU Exchange Rates and the Price of Inputs to Agriculture Using Monthly Data for the 1976 - September 1980 Period and Allowing for Time Lags of Various Lengths
(See the text of Chapter 5 for further explanations).

i) Three month time lag

Independent variable = ECU exchange rate

Standard error of β in brackets

Dependent variable = $P^C$, the price of goods and services consumed in agriculture.

<table>
<thead>
<tr>
<th>Equation</th>
<th>$R^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG $P^C_{FRG} = 45.81 + 0.212 e^C_{FRG}$</td>
<td>0.010</td>
<td>0.776</td>
<td>0.139</td>
</tr>
<tr>
<td>France $P^C_{FR} = -3.799 + 0.741 e^C_{FR}$</td>
<td>0.125</td>
<td>10.356</td>
<td>0.213</td>
</tr>
<tr>
<td>Italy $P^C_{IT} = -35.634 + 1.023 e^C_{IT}$</td>
<td>0.316</td>
<td>35.076</td>
<td>0.380</td>
</tr>
<tr>
<td>Neth. $P^C_N = 42.075 + 0.336 e^C_N$</td>
<td>0.010</td>
<td>0.757</td>
<td>1.134</td>
</tr>
<tr>
<td>Belgium $P^C_B = 33.26 + 0.368 e^C_B$</td>
<td>0.028</td>
<td>2.224</td>
<td>0.145</td>
</tr>
<tr>
<td>Lux. $P^C_L = 33.25 - 0.355 e^C_L$</td>
<td>0.028</td>
<td>2.214</td>
<td>0.153</td>
</tr>
<tr>
<td>UK $P^C_UK = -57.583 + 1.347 e^C_UK$</td>
<td>0.354</td>
<td>41.51</td>
<td>0.297</td>
</tr>
<tr>
<td>Ireland $P^C_Ireland = -54.64 - 1.285 e^C_Ireland$</td>
<td>0.346</td>
<td>40.236</td>
<td>0.288</td>
</tr>
<tr>
<td>Denmark $P^C_D = 15.127 + 0.548 e^C_D$</td>
<td>0.069</td>
<td>5.54</td>
<td>0.172</td>
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</tbody>
</table>
i) Three month lag cont'd.

Dependent variable = $P^I$, the price of goods contributing to agricultural investment.

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<th>Equation</th>
<th>$R^2$</th>
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<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG</td>
<td>$P^I_{FRG} = 43.167 + 0.215 e_{FRG}$</td>
<td>0.011</td>
<td>0.857</td>
<td>0.138</td>
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<td>(0.232)</td>
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<tr>
<td>France</td>
<td>$P^I_{FR} = -1.385 + 0.710 e_{FR}$</td>
<td>0.118</td>
<td>10.135</td>
<td>0.200</td>
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<tr>
<td>(0.223)</td>
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<tr>
<td>Italy</td>
<td>$P^I_{IT} = -49.178 + 1.166 e_{IT}$</td>
<td>0.375</td>
<td>45.48</td>
<td>0.294</td>
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<tr>
<td>(0.173)</td>
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<td>Netherlands</td>
<td>$P^I_{NL} = 38.318 + 0.336 e_{NL}$</td>
<td>0.0224</td>
<td>1.743</td>
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<tr>
<td>Belgium</td>
<td>$P^I_{BE} = 34.667 + 0.374 e_{BE}$</td>
<td>0.028</td>
<td>2.176</td>
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<td>(0.254)</td>
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<tr>
<td>Luxemburg</td>
<td>$P^I_{LU} = 33.506 + 0.3812 e_{LU}$</td>
<td>0.029</td>
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<tr>
<td>UK</td>
<td>$P^I_{UK} = -59.563 + 1.388 e_{UK}$</td>
<td>0.353</td>
<td>41.42</td>
<td>0.303</td>
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<tr>
<td>(0.215)</td>
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<tr>
<td>Ireland</td>
<td>$P^I_{IRE} = -58.20 + 1.378 e_{IRE}$</td>
<td>0.345</td>
<td>40.041</td>
<td>0.273</td>
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<tr>
<td>Denmark</td>
<td>$P^I_{DK} = 15.801 + 0.548 e_{DK}$</td>
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ii) Six Months Lag

Dependent Variable = $P^C$, the price of goods and services consumed in agriculture.

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<tr>
<td>FRG</td>
<td>$P^C_{FRG} = 18.29 + 0.553 e_{FRG}$</td>
<td>0.123</td>
<td>10.696</td>
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<td>(0.169)</td>
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<tr>
<td>France</td>
<td>$P^C_{FR} = 1.380 + 0.720 e_{FR}$</td>
<td>0.221</td>
<td>21.564</td>
<td>0.235</td>
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<td>(0.155)</td>
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### ii) six month lag cont'd

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<th>$F$</th>
<th>DW</th>
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<td>Italy</td>
<td>( P_{It} = -12.598 + 0.651 \varepsilon_{It} )</td>
<td>0.351</td>
<td>41.134</td>
<td>0.381</td>
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<tr>
<td>Neth.</td>
<td>( P_{N} = 17.71 + 0.535 \varepsilon_{N} )</td>
<td>0.066</td>
<td>5.384</td>
<td>1.213</td>
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<tr>
<td>Belgium</td>
<td>( P_{B} = 12.57 + 0.525 \varepsilon_{B} )</td>
<td>0.152</td>
<td>13.62</td>
<td>1.29</td>
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<tr>
<td>Lux.</td>
<td>( P_{L} = 12.591 + 0.621 \varepsilon_{L} )</td>
<td>0.152</td>
<td>13.55</td>
<td>1.198</td>
</tr>
<tr>
<td>UK</td>
<td>( P_{UK} = -26.002 + 1.03 \varepsilon_{UK} )</td>
<td>0.416</td>
<td>54.138</td>
<td>0.238</td>
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<tr>
<td>Ireland</td>
<td>( P_{Ire} = -23.314 + 1.048 \varepsilon_{Ire} )</td>
<td>0.403</td>
<td>51.342</td>
<td>0.283</td>
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<tr>
<td>Denmark</td>
<td>( P_{D} = 8.4938 + 0.654 \varepsilon_{D} )</td>
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Dependent variable: \( P \)

<table>
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<th>$F$</th>
<th>DW</th>
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<tr>
<td>FRG</td>
<td>( P_{FRG} = 17.022 + 0.5398 \varepsilon_{FRG} )</td>
<td>0.125</td>
<td>10.92</td>
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<tr>
<td>France</td>
<td>( P_{Fr} = 2.761 + 0.699 \varepsilon_{Fr} )</td>
<td>0.213</td>
<td>20.59</td>
<td>0.221</td>
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<tr>
<td>Italy</td>
<td>( P_{It} = -19.99 + 0.967 \varepsilon_{It} )</td>
<td>0.404</td>
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<td>0.262</td>
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<tr>
<td>Neth.</td>
<td>( P_{N} = 15.187 + 0.622 \varepsilon_{N} )</td>
<td>0.142</td>
<td>12.54</td>
<td>0.150</td>
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<tr>
<td>Belgium</td>
<td>( P_{B} = 13.203 + 0.641 \varepsilon_{B} )</td>
<td>0.151</td>
<td>13.534</td>
<td>0.133</td>
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<tr>
<td>UK</td>
<td>( P_{UK} = -27.257 - 1.127 \varepsilon_{UK} )</td>
<td>0.417</td>
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### ii) Six Month Lag cont'd.

<table>
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<th>DW</th>
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<tr>
<td>Ireland $P_{Ire} = -25.291 + 1.122 e_{Ire}$</td>
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<tr>
<td>Denmark $P_D = 8.82 + 0.649 e_D$</td>
<td>0.176</td>
<td>16.18</td>
<td>.201</td>
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### iii) Twelve Month Lag

**Dependent variable = $P^C$**

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<td>FRG $P_{Fr}^C = 3.872 + 0.788 e_{Fr}^C$</td>
<td>0.447</td>
<td>61.43</td>
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<tr>
<td>France $P_{Fr}^C = 1.985 + 0.782 e_{Fr}$</td>
<td>0.469</td>
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<tr>
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<tr>
<td>Italy $P_{It}^C = 1.989 + 0.811 e_{It}$</td>
<td>0.497</td>
<td>75.087</td>
<td>0.484</td>
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<tr>
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<tr>
<td>Neth. $P_{N}^C = 4.632 + 0.857 e_{N}$</td>
<td>0.218</td>
<td>21.174</td>
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<tr>
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<tr>
<td>Belgium $P_{B}^C = 2.677 + 0.805 e_{B}$</td>
<td>0.457</td>
<td>63.54</td>
<td>0.349</td>
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<td>(101)</td>
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<tr>
<td>Lux. $P_{L}^C = 2.858 + 0.80 e_{L}$</td>
<td>.455</td>
<td>63.54</td>
<td>0.349</td>
</tr>
<tr>
<td>(0.100)</td>
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<tr>
<td>UK $P_{UK}^C = -5.335 + 0.969 e_{UK}$</td>
<td>.5798</td>
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<tr>
<td>Ireland $P_{Ire}^C = -5.781 + .956 e_{Ire}$</td>
<td>.583</td>
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<td>0.384</td>
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</tr>
<tr>
<td>Denmark $P_D^C = 3.007 + 0.777 e_D$</td>
<td>.452</td>
<td>62.79</td>
<td>.337</td>
</tr>
<tr>
<td>(0.098)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### iii) Twelve Month Lag cont'd.

Dependent variable = $P^I$

<table>
<thead>
<tr>
<th>Equation</th>
<th>$R^2$</th>
<th>$F$</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG $P^I_{FRG} = 3.319 + 0.764 e_{FRG}$</td>
<td>0.449</td>
<td>62.023</td>
<td>0.338</td>
</tr>
<tr>
<td>(0.097)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy $P^I_{It} = -1.955 + 0.896 e_{It}$</td>
<td>0.554</td>
<td>94.16</td>
<td>0.362</td>
</tr>
<tr>
<td>(0.0923)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France $P^I_{Fr} = 2.707 + 0.766 e_{Fr}$</td>
<td>0.461</td>
<td>54.956</td>
<td>0.329</td>
</tr>
<tr>
<td>(0.095)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neth. $P^I_N = 3.754 + 0.820 e_N$</td>
<td>0.447</td>
<td>61.51</td>
<td>0.337</td>
</tr>
<tr>
<td>(0.105)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium $P^I_B = 2.981 + 0.825 e_B$</td>
<td>0.456</td>
<td>63.60</td>
<td>0.325</td>
</tr>
<tr>
<td>(0.104)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lux. $P^I_L = 2.724 + 0.823 e_L$</td>
<td>0.456</td>
<td>63.83</td>
<td>0.339</td>
</tr>
<tr>
<td>(0.103)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK $P^I_UK = -6.11 + 1.003 e_{UK}$</td>
<td>0.584</td>
<td>106.66</td>
<td>0.397</td>
</tr>
<tr>
<td>(0.097)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland $P^I = -5.83 + 1.025 e_{Ire}$</td>
<td>0.561</td>
<td>105.42</td>
<td>0.350</td>
</tr>
<tr>
<td>UK (0.099)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark $P^I_D = 3.115 + 0.733 e_D$</td>
<td>0.452</td>
<td>62.64</td>
<td>0.329</td>
</tr>
<tr>
<td>(0.099)</td>
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</tr>
</tbody>
</table>

### iv) Two Year Lag

Dependent variable = $P^C$

<table>
<thead>
<tr>
<th>Equation</th>
<th>$R^2$</th>
<th>$F$</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG $P^C_{FRG} = 23.511 + 0.336 e_{FRG}$</td>
<td>0.484</td>
<td>71.27</td>
<td>0.324</td>
</tr>
<tr>
<td>(0.075)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France $P^C_{Fr} = 24.74 + 0.65 e_{Fr}$</td>
<td>0.514</td>
<td>80.38</td>
<td>0.355</td>
</tr>
<tr>
<td>(0.072)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy $P^C_{It} = 31.41 + 0.663 e_{It}$</td>
<td>0.475</td>
<td>58.595</td>
<td>0.44</td>
</tr>
<tr>
<td>(0.080)</td>
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<td></td>
</tr>
</tbody>
</table>
### iv) Two Year Lag cont'd.

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$r^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neth.</td>
<td>$P_N^C = 21.49 + .762 e_N$</td>
<td>.278</td>
<td>29.28</td>
<td>1.577</td>
</tr>
<tr>
<td></td>
<td>(0.141)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Belgium</td>
<td>$P_B^C = 23.622 + 0.651 e_B$</td>
<td>.495</td>
<td>74.42</td>
<td>.319</td>
</tr>
<tr>
<td></td>
<td>(0.076)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lux.</td>
<td>$P_L^C = 23.83 + 0.644 e_L$</td>
<td>.489</td>
<td>72.80</td>
<td>.382</td>
</tr>
<tr>
<td></td>
<td>(0.076)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>$P_{UK}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>$P_{Ire}^C = 27.448 + 0.749 e_{Ire}$</td>
<td>.553</td>
<td>74.159</td>
<td>.384</td>
</tr>
<tr>
<td></td>
<td>(.077)</td>
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<td></td>
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</tr>
<tr>
<td>Denmark</td>
<td>$P_{D}^C = 24.45 + 0.639 e_D$</td>
<td>.492</td>
<td>73.72</td>
<td>.337</td>
</tr>
<tr>
<td></td>
<td>(.074)</td>
<td></td>
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</tbody>
</table>

**Dependent variable = $P^I$**

<table>
<thead>
<tr>
<th>Country</th>
<th>Equation</th>
<th>$r^2$</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRG</td>
<td>$P_{FRG}^I = 22.659 + 0.612 e_{FRG}$</td>
<td>.479</td>
<td>69.98</td>
<td>.319</td>
</tr>
<tr>
<td></td>
<td>(0.073)</td>
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<td></td>
</tr>
<tr>
<td>France</td>
<td>$P_{FR}^I = 25.604 + .627 e_{FR}$</td>
<td>.492</td>
<td>73.55</td>
<td>.332</td>
</tr>
<tr>
<td></td>
<td>(0.073)</td>
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<td></td>
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</tr>
<tr>
<td>Italy</td>
<td>$P_{It}^I = 29.345 + 0.747 e_{It}$</td>
<td>.550</td>
<td>92.92</td>
<td>.3397</td>
</tr>
<tr>
<td></td>
<td>(0.078)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Neth.</td>
<td>$P_{N}^I = 21.30 + 0.708 e_N$</td>
<td>.538</td>
<td>88.59</td>
<td>.375</td>
</tr>
<tr>
<td></td>
<td>(0.075)</td>
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</tr>
<tr>
<td>Belgium</td>
<td>$P_{B}^I = 24.437 + 0.669 e_B$</td>
<td>.494</td>
<td>74.2</td>
<td>.311</td>
</tr>
<tr>
<td></td>
<td>(0.078)</td>
<td></td>
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</tr>
<tr>
<td>Lux.</td>
<td>$P_{L}^I = 24.361 + 0.654 e_L$</td>
<td>.475</td>
<td>68.63</td>
<td>.310</td>
</tr>
<tr>
<td></td>
<td>(0.079)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>$P_{UK}^I$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>$P_{Ire}^I = 29.867 + .802 e_{Ire}$</td>
<td>.551</td>
<td>93.08</td>
<td>.313</td>
</tr>
<tr>
<td></td>
<td>(0.083)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>$P_{D}^I = 24.436 + 0.648 e_D$</td>
<td>.499</td>
<td>75.55</td>
<td>.328</td>
</tr>
<tr>
<td></td>
<td>(.0746)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>